

Producción científica, junio 2020

Boletín de publicaciones de producción científica de la
Universidad Pablo de Olavide.

N.º de Boletín: 4/2020

Biblioteca/CRAI

Servicio de Apoyo a la Investigación

Sevilla, julio de 2020

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1. Web of Science

Estrategia de búsqueda avanzada:

OG=(Universidad Pablo de Olavide)

Índices=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI

Período de tiempo=Año hasta la fecha

2. Scopus

Estrategia de búsqueda avanzada:

((AF-ID ("CSIC-JA-UPO-USE - Centro Andaluz de Biología Molecular y Medicina Regenerativa CABIMER" 60012334)) OR ((AF-ID ("Universidad Pablo de Olavide" 60030114) OR AF-ID ("CSIC-JA-UPO - Centro Andaluz de Biología del Desarrollo CABD" 60103756))) AND (LIMIT-TO (PUBYEAR , 2020)

3. Dialnet

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Fecha de recolección de datos:

Web of Science y Scopus: 09/07/2020

Dialnet: 10/07/2020



Publicaciones

AGUADO MÉNDEZ, R.D., GONZÁLEZ-JURADO, J.A. y OTERO-SABORIDO, F.M., 2020. Análisis observacional de goles recibidos por el Real Betis en La Liga: estudio de caso. En: *Retos: nuevas tendencias en educación física, deporte y recreación*, no. 38, pp. 355-362. ISSN 1579-1726.

Variability, unpredictability and low scores in football make it a dynamic and complex system difficult to analyze in which every detail can be determinant for the final result. Therefore, the main objective of this research is to analyze the goals conceded (N=61) by a professional football team from the point of view of situational, offensive and defensive variables. The observational methodology was applied so to analyze Real Betis Balompié (2017-2018 season) with a validated tool. Descriptive analysis techniques and independence tests were used. The results of the situational variables reflect that '76-90' period' and 'losing' are factors that cause an increase in goals conceded. The form and area of loss that obtained higher percentages was 'Stealing' (36.1%) and 'Z6' (19.7%). Of the total number of goals conceded, 62.3% happened when 4 or more of the analyzed team's players were ahead of the ball. With respect to the opponents, they used few passes (<4) in 63.9% of the goals conceded. As a conclusion, the last 15' are decisive in the balance of goals conceded. This influence increases if the team is losing. Finally, given the high percentage of rival success in attacks with short duration and few passes, it seems that stopping the first pass in the defense-attack transition could decrease the number of goals conceded.

ALEGRE, P., BARRERA, J. y CARRIAZO, A., 2020. A New Class of Slant Submanifolds in Generalized Sasakian Space Forms. *Mediterranean Journal of Mathematics* [en línea], vol. 17, no. 3. DOI 10.1007/s00009-020-01511-9.

In this paper, we introduce the notion of $**$ -slant submanifold as that slant submanifold whose second fundamental form satisfies the equality case of an inequality between its mean curvature and its scalar curvature. In addition to that, we give several interesting examples about these submanifolds. Finally, we obtain the Ricci curvature for a $**$ -slant submanifold depending on the mean curvature vector and we give lower and upper bounds for the Ricci curvature.

AMADOR MUÑOZ, L.V., ESTEBAN IBÁÑEZ, M., MUSITU FERRER, D., LEÓN MORENO, C. y CALLEJAS JERÓNIMO, J.E., 2020. Fiabilidad y validez de la escala de actitudes hacia el medio ambiente natural para adolescentes (Aman-a). *Revista de humanidades*, no. 39, pp. 247-270. ISSN 1130-5029. 10.5944/rdh.39.2020.25471

Abstract: The aim of this study was to design and validate a scale of attitudes towards the natural environment among Spanish teenagers. 72 items were generated from the

writings of 264 adolescents on attitudes towards the environment. Through expert judgement and a pilot study, a depuration was carried out, reducing the scale to 9 items that were administered to a sample of 833 adolescents of both sexes. By means of an exploratory Factor analysis, two dimensions were identified, proximal attitude and distal attitude, which were replicated through a confirmatory analysis whose results showed a good fit to the data. Reliability indices were adequate and with respect to validity significant relationships were obtained with empathy with the natural environment in its two dimensions, cognitive and emotional, and school adjustment. Significant gender differences were also found in distal, but not proximal, attitudes. Results obtained are analysed and the importance of this scale in environmental research in adolescence is also highlighted.

AMENGUAL PIZARRO, M., PALACIOS MARTÍNEZ, I.M., LÁZARO LAFUENTE, L.A. y MARTÍNEZ VÁZQUEZ, M., 2020. Up for Debate: English Tests in the Spanish University Entrance Exams. *Advances in English and American Studies: current developments, future trends*. S.I.: Universidad de Córdoba, pp. 209-214. ISBN Universidad de Córdoba978-84-9927-546-8.

ANDÚJAR LLOSA, A., 2020. Residential vulnerability and the housing question: a social and spatial-oriented analysis for the Andalusia metropolitan areas. *Boletín de la Asociación de Geógrafos Españoles*, no. 84, pp. 13- 0. ISSN 0212-9426.

El desajuste entre las necesidades residenciales de los hogares y las características de la vivienda supone un elemento constituyente de la vulnerabilidad residencial. De acuerdo con las directrices establecidas a nivel internacional y nacional, este artículo aplica un enfoque integral en el análisis de la realidad urbana. Así-, el concepto de vulnerabilidad residencial es empleado para analizar conjuntamente las Áreas y grupos sociales en riesgo debido a las características de la vivienda. A partir de los Censos de Población y Viviendas de 2011, se han desarrollado tres indicadores que permiten analizar la dimensión y alcance de las situaciones de vulnerabilidad residencial provocadas por las características físicas de la vivienda, y su relación con otras dimensiones de la vulnerabilidad social en el sistema metropolitano andaluz. Los resultados muestran importantes deficiencias respecto a las condiciones de las viviendas, con diferente intensidad entre las distintas áreas metropolitanas y grupos sociales. Aunque los problemas identificados afectan a una proporción reducida de la población, cuentan con gran relevancia debido a la gravedad de las situaciones residenciales que representan y los grupos sociales afectados. Estas problemáticas deben constituir un objetivo prioritario de las políticas de vivienda social y espacialmente sostenibles.

ARANGUREN URRIZA, F.J., PRETEL SERRANO, J.J., ESPEJO LERDO DE TEJADA, M., SALES CAPILLA RONCERO, F. de, ARJONA GUAJARDO-FAJARDO, J.L. y MURGA FERNÁNDEZ, J.P., 2020. *Estudios sobre la Ley*

Reguladora de los Contratos de Crédito Inmobiliario. S.l.: Reus. ISBN Reus978-84-290-2297-1.

El contrato de crédito inmobiliario es, sin duda, uno de los negocios más relevantes del tráfico jurídico actual. En efecto, una gran parte de las familias que acceden a la propiedad de sus viviendas, lo hacen solicitando un préstamo que estará, en la mayoría de los casos, garantizado con una hipoteca sobre un bien inmueble. Por esta razón es conveniente establecer un régimen jurídico seguro y eficaz, que proteja este tipo de operaciones y a los sujetos que intervienen en la misma, especialmente cuando éstos se encuentran en una posición de clara desventaja dentro de la relación negocial. A partir de esas consideraciones, la presente obra aborda el tratamiento de la Ley 5/2019, de 15 de marzo, reguladora de contratos de crédito inmobiliario de un modo exhaustivo. Los doce capítulos que la constituyen no se circunscriben al mero comentario normativo, sino que abordan de modo monográfico algunas cuestiones controvertidas y debatidas en el ámbito de la contratación inmobiliaria hipotecaria, como la limitación de los intereses de demora, las subrogaciones hipotecarias, el vencimiento anticipado, la privación de la vivienda habitual tras la ejecución hipotecaria o la dación en pago. Por supuesto y es algo común a todas las aportaciones que la componen, una obra de estas características, centrada en una nueva Ley de innegable importancia por su objeto y por el sector del mercado en el que ha de aplicarse, tiene un claro componente valorativo. Debe ser así. En este sentido, los autores no se ahorran el reconocimiento de los aciertos que presenta ésta incluidos los que son propios del legislador español, es decir, los que son producto del margen de actuación que la Directiva 2014/17/UE del Parlamento Europeo y del Consejo, de 4 de febrero de 2014, sobre los contratos de crédito celebrados con los consumidores para bienes inmuebles de uso residencial, ha permitido al legislador nacional pero tampoco sustraen las críticas a las deficiencias y carencias técnicas y a las incertezas que contiene. Resulta de interés, en ese sentido, que este volumen se encuentre enriquecido por la experiencia proporcionada por la aplicación práctica de la norma por parte de Notarios, Registradores y Asociaciones de consumidores. Tiempo habrá, llegado el caso, de abordar las reformas que sean necesarias, algunas de las cuales ya se apuntan en esta obra.

ARROYO-GARCIA, L.E., TENDILLA-BELTRAN, H., VAZQUEZ-ROQUE, R.A., JURADO-TAPIA, E.E., DIAZ, A., AGUILAR-ALONSO, P., BRAMBILA, E., MONJARAZ, E., DE LA CRUZ, F., RODRIGUEZ-MORENO, A. y FLORES, G., 2020. Amphetamine sensitization alters hippocampal neuronal morphology and memory and learning behaviors. *Molecular Psychiatry*, ISSN 1359-4184. DOI 10.1038/s41380-020-0809-2.

It is known that continuous abuse of amphetamine (AMPH) results in alterations in neuronal structure and cognitive behaviors related to the reward system. However, the impact of AMPH abuse on the hippocampus remains unknown. The aim of this study was to determine the damage caused by AMPH in the hippocampus in an addiction model. We reproduced the AMPH sensitization model proposed by Robinson et al. in 1997 and performed the novel object recognition test (NORt) to evaluate learning and memory behaviors. After the NORt, we performed

Golgi–Cox staining, a stereological cell count, immunohistochemistry to determine the presence of GFAP, CASP3, and MT-III, and evaluated oxidative stress in the hippocampus. We found that AMPH treatment generates impairment in short- and long-term memories and a decrease in neuronal density in the CA1 region of the hippocampus. The morphological test showed an increase in the total dendritic length, but a decrease in the number of mature spines in the CA1 region. GFAP labeling increased in the CA1 region and MT-III increased in the CA1 and CA3 regions. Finally, we found a decrease in Zn concentration in the hippocampus after AMPH treatment. An increase in the dopaminergic tone caused by AMPH sensitization generates oxidative stress, neuronal death, and morphological changes in the hippocampus that affect cognitive behaviors like short- and long-term memories.

ASADI, A., RAMIREZ-CAMPILLO, R., ARAZI, H. y SAEZ DE VILLARREAL, E., 2018. The effects of maturation on jumping ability and sprint adaptations to plyometric training in youth soccer players. *Journal of Sports Sciences*, vol. 36, no. 21, pp. 2405-2411. ISSN 0264-0414. DOI 10.1080/02640414.2018.1459151.

The aim of this study was to investigate the effects of maturation on power and sprint performance adaptations following 6 weeks of plyometric training in youth soccer players during pre-season. Sixty male soccer players were categorized into 3 maturity groups (Pre, Mid and Post peak height velocity [PHV]) and then randomly assigned to plyometric group and control group. Vertical jump, standing long jump, and 20-m sprint (with and without ball) tests were collected before and after intervention. After the intervention, the Pre, Mid and Post-PHV groups showed significant ($P \leq 0.05$) and small to moderate effect size (ES) improvement in vertical jump (ES = 0.48; 0.57; 0.73), peak power output (ES = 0.60; 0.64; 0.76), standing long jump (ES = 0.62; 0.65; 0.7), 20-m sprint (ES = -0.58; -0.66), and 20-m sprint with ball (ES = -0.44; -0.8; -0.55) performances. The Post-PHV soccer players indicated greater gains than Pre-PHV in vertical jump and sprint performance after training ($P \leq 0.05$). Short-term plyometric training had positive effects on sprinting and jumping-power which are important determinants of match-winning actions in soccer. These results indicate that a sixty foot contact, twice per week program, seems effective in improving power and sprint performance in youth soccer players.

BACHMANN FUENTES, R.I., 2020. Biopiratería: apropiación de los bienes comunes mediante los Derechos de Propiedad Intelectual. *Más sobre periodismo y derechos humanos emergentes*. S.I.: Universidad de Sevilla, pp. 29-43. ISBN Universidad de Sevilla 978-84-09-16723-4.

En el presente capítulo, se pretende ofrecer una breve relación de cómo fue evolucionando el derecho industrial para permitir la patentabilidad de material biológico. En primer lugar, se analiza el desarrollo legislativo y jurisprudencial de Estados Unidos y, posteriormente, su aplicación en el Derecho Internacional y su imposición a países del tercer mundo, con el fin de permitir un desarrollo industrial biotecnológico basado en la biopiratería.

BAENA-GONZÁLEZ, R., GARCÍA-TASCÓN, M., CHAVARRÍA-ORTÍZ, C., MARTÍNEZ-MARTÍN, I. y GALLARDO, A.M., 2020. Opinion of handball players, trainers and referees using the handball/futsal goalpost anti-tip system “tutigool” for a safe game: 2019 four nations international handball junior tournament. *Journal of Physical Education and Sport*, vol. 20, no. 4, pp. 1695-1705. DOI 10.7752/jpes.2020.04230.

Problem Statement: Athletes and especially children die around the world due to sports accidents. In this regard, changes in the federal sports regulations are not only aimed at favoring the game, but also to improve the safety of athletes. In handball, the goal is an essential piece of equipment and the anti-tip system used is fundamental to prevent accidents. **Purpose:** The objective of the present study was to know the opinion of different sports agents about the use of the Tutigool anti-tip system in the goals. **Methods:** The sample consisted of 60 subjects (players (51 ± 0.72), trainers (5 ± 14.01), and referees (4 ± 2.5)), of which, 96.7% were men and 3.3% women. A modified Likert-scale questionnaire was filled out (1 = strongly disagree to 7 = strongly agree) by the participants of the Four Nations International Tournament in January 2019 in the male U21 category, held in Santander (Spain). The questionnaire consisted of 18 items. **Results:** The most relevant results affirm that the system is appropriate for the handball game at the municipal and school level at 5.35 and for high level sports at 4.10. The average satisfaction with this system is 4.34. By agents, the coaches obtained 5.4, the referees 4.5 and the players 4.22. The Kruskal-Wallis test was carried out, which showed no significant differences in the mean scores ($p > 0.05$) given by players, trainers and referees in different aspects related to the anti-tip system. **Conclusions:** These results allow making a deep reflection and a change in handball regulations with the aim of adapting them and guaranteeing a safer practice, not only for athletes and amateur users, but also for sports facilities technicians who are responsible for the maintenance and handling of sports equipment

BALESTRA, S.R.G., VICENT-LUNA, J.M., CALERO, S., TAO, S. y ANTA, J.A., 2020. Efficient modelling of ion structure and dynamics in inorganic metal halide perovskites. *Journal of Materials Chemistry A*, vol. 8, no. 23, pp. 11824-11836. DOI 10.1039/d0ta03200j.

Metal halide perovskites (MHPs) are nowadays one of the most studied semiconductors due to their exceptional performance as active layers in solar cells. Although MHPs are excellent solid-state semiconductors, they are also ionic compounds, where ion migration plays a decisive role in their formation, their photovoltaic performance and their long-term stability. Given the above-mentioned complexity, molecular dynamics simulations based on classical force fields are especially suited to study MHP properties, such as lattice dynamics and ion migration. In particular, the possibility to model mixed compositions is important since they are the most relevant to optimize the optical band gap and the stability. With this intention, we employ DFT calculations and a genetic algorithm to

develop a fully transferable classical force field valid for the benchmark inorganic perovskite compositional set $\text{CsPb}(\text{Br}_x\text{I}_{1-x})_3$ ($x = 0, 1/3, 2/3, 1$). The resulting force field reproduces correctly, with a common set of parameters valid for all compositions, the experimental lattice parameter as a function of bromide/iodide ratio, the ion–ion distances and the XRD spectra of the pure and mixed structures. The simulated elastic constants, thermal conductivities and ion migration activation energies of the pure compounds are also in good agreement with experimental trends. Our molecular dynamics simulations make it possible to predict the compositional dependence of the ionic diffusion coefficient on bromide/iodide ratio and vacancy concentration. Interestingly, compared to the pure compounds, we found a significantly lower activation energy for vacancy migration and faster diffusion for the mixed perovskites. This anomalous effect helps to understand the photoinduced phase segregation observed in the mixed perovskite. The method presented here represents a first step towards the generation of fully generic classical force fields of pure and mixed photovoltaic perovskites using genetic algorithms that optimize the required parameters for a wide range of lattice deformations.

BARATTO-ROLDAN, A., DEL CARMEN JIMENEZ-RAMOS, M., JIMENO, S., HUERTAS, P., GARCIA-LOPEZ, J., ISABEL GALLARDO, M., ANTONIO CORTES-GIRALDO, M. y MANUEL ESPINO, J., 2020. Preparation of a radiobiology beam line at the 18 MeV proton cyclotron facility at CNA. *Physica Medica-European Journal of Medical Physics*, vol. 74, pp. 19-29. ISSN 1120-1797. DOI 10.1016/j.ejmp.2020.04.022.

Proton therapy has gained interest in recent years due to its excellent clinical outcomes. However, the lack of accurate biological data, especially in the Bragg peak region of clinical beams, makes it difficult to implement biophysically optimized treatment plans in clinical practice. In this context, low energy proton accelerator facilities provide the perfect environment to collect good radiobiological data, as they can produce high LET beams with narrow energy distributions. This study presents the radiobiology beam line that has been designed at the 18 MeV proton cyclotron facility at the National Centre of Accelerators (CNA, Seville, Spain), to perform irradiations of mono-layer cell cultures. To ensure that all the cells receive the same dose with a suitable dose rate, low beam intensities and broad and homogeneous beam profiles are necessary. To do so, at the CNA an unfocused beam has been used, broadened with a 500 μm thick aluminium scattering foil. Homogeneous dose profiles, with deviations lower than 10% have been obtained over a circular surface of 35 mm diameter for an incident average energy of 12.8 MeV. Further, a Monte Carlo simulation of the beam line has been developed with Geant4, and benchmarked towards experimental measurements, with differences generally below 1%. Once validated, the code has been used, together with an ionization chamber, for dosimetry studies, to characterize the beam and monitor the dose. Finally, cultures of Human Bone Osteosarcoma cells (U2OS) have been successfully irradiated at the radiobiology beam line, investigating the effects of radiation in terms of DNA damage induction.

BERGANTINOS, G. y MORENO-TERNERO, J.D., 2020. Sharing the Revenues from Broadcasting Sport Events. *Management Science*, vol. 66, no. 6, pp. 2417-2431. ISSN 0025-1909. DOI 10.1287/mnsc.2019.3313.

We study the problem of sharing the revenues from broadcasting sport league events among participating teams. We provide direct, axiomatic, and game-theoretical foundations for two focal rules: the *equal-split rule* and *concede-and-divide*. The former allocates the revenues generated from broadcasting each game equally among the participating teams in the game. The latter concedes each team the revenues from its fan base and divides equally the residual. We also provide an application studying the case of sharing the revenue from broadcasting games in *La Liga*, the Spanish Football League. We show that hybrid schemes, combining our rules with lower bounds and performance measures, yield close outcomes to the current allocation being implemented by the Spanish National Professional Football League Association.

BERMUDO, S., NÁPOLES, J.E. y RADA, J., 2020. Extremal trees for the Randić index with given domination number. *Applied Mathematics and Computation* [en línea], vol. 375. DOI 10.1016/j.amc.2020.125122.

The Randić index is the topological index most widely used in applications for chemistry and pharmacology. It is defined for a graph G with vertex set $V(G)$ and edge set $E(G)$ as $R(G) = \sum_{uv \in E(G)} \frac{1}{\sqrt{\deg(u)\deg(v)}}$, where $\deg(u)$ and $\deg(v)$ denote the degrees of the vertices $u, v \in V(G)$. In this paper we find upper and lower bounds of the Randić index of trees in terms of the order and the domination number. The extremal trees are characterized.

BOSE, A.K., GESSLER, A., BOLTE, A., BOTTERO, A., BURAS, A., CAILLERET, M., CAMARERO, J.J., HAENI, M., HERES, A.-M., HEVIA, A., LEVESQUE, M., LINARES, J.C., MARTINEZ-VILALTA, J., MATIAS, L., MENZEL, A., SANCHEZ-SALGUERO, R., SAURER, M., VENNETIER, M., ZICHE, D. y RIGLING, A., 2020. Growth and resilience responses of Scots pine to extreme droughts across Europe depend on predrought growth conditions. *Global Change Biology*, ISSN 1354-1013. DOI 10.1111/gcb.15153.

Global climate change is expected to further raise the frequency and severity of extreme events, such as droughts. The effects of extreme droughts on trees are difficult to disentangle given the inherent complexity of drought events (frequency, severity, duration, and timing during the growing season). Besides, drought effects might be modulated by trees' phenotypic variability, which is, in turn, affected by long-term local selective pressures and management legacies. Here we investigated the magnitude and the temporal changes of tree-level resilience (i.e., resistance, recovery, and resilience) to extreme droughts. Moreover, we assessed the tree-, site-, and drought-related factors and their interactions driving the tree-level resilience to extreme droughts. We used a tree-ring network of the widely distributed Scots pine (*Pinus sylvestris*) along a 2,800 km latitudinal gradient

from southern Spain to northern Germany. We found that the resilience to extreme drought decreased in mid-elevation and low productivity sites from 1980–1999 to 2000–2011 likely due to more frequent and severe droughts in the later period. Our study showed that the impact of drought on tree-level resilience was not dependent on its latitudinal location, but rather on the type of sites trees were growing at and on their growth performances (i.e., magnitude and variability of growth) during the predrought period. We found significant interactive effects between drought duration and tree growth prior to drought, suggesting that Scots pine trees with higher magnitude and variability of growth in the long term are more vulnerable to long and severe droughts. Moreover, our results indicate that Scots pine trees that experienced more frequent droughts over the long-term were less resistant to extreme droughts. We, therefore, conclude that the physiological resilience to extreme droughts might be constrained by their growth prior to drought, and that more frequent and longer drought periods may overstrain their potential for acclimation.

BUENO-ANTEQUERA, J., MAYOLAS-PI, C., REVERTER-MASIÀ, J., LÓPEZ-LAVAL, I., OVIEDO-CARO, M.Á., MUNGUÍA-IZQUIERDO, D., RUIDÍAZ-PEÑA, M. y LEGAZ-ARRESE, A., 2020. Exercise addiction and its relationship with health outcomes in indoor cycling practitioners in fitness centers. *International Journal of Environmental Research and Public Health*, vol. 17, no. 11, pp. 1-13. DOI 10.3390/ijerph17114159.

We studied the prevalence and possible association between exercise addiction and health in indoor cycling practitioners. In 1014 (492 women) adult indoor cyclists and 926 (597 women) controls with low levels of physical activity according to the short form of the International Physical Activity Questionnaire, we examined the risk of exercise addiction according to the Exercise Addiction Inventory and several health outcomes through a web-based experiment. The prevalence of a high risk of exercise addiction in cyclists was 13.3%, and it was higher in men than in women (16.5% vs. 10.0%, $p = 0.002$). Women cyclists with a high risk of exercise addiction had higher levels of physical activity ($p < 0.001$; effect size = -0.62 , 95% CI: $(-0.91, -0.32)$) and anxiety symptom severity ($p = 0.001$; Effect Size (ES) = -0.59 ($-0.89, -0.30$)) than those with a low risk. For both sexes, cyclists with a low risk of exercise addiction had better social function, emotional role, and anxiety symptom severity compared with the controls (all $p < 0.002$; ES ranged from 0.25 to 0.47). Higher anxiety symptom severity and cardiorespiratory fitness were the main determinants of exercise addiction in cyclists (both $p < 0.001$). Our data suggest the importance of considering exercise addiction in indoor cyclists

CAMACHO, P., CRUZ, D.A., MADINABEITIA, I., GIMENEZ, F.J. y CARDENAS, D., 2020. Time Constraint Increases Mental Load and Influences in the Performance in Small-Sided Games in Basketball. *Research Quarterly for Exercise and Sport*, ISSN 0270-1367. DOI 10.1080/02701367.2020.1745138.

In team sports like basketball, small-sided games have received much scientific attention

because of their capacity to simulate competitive environments. The purpose of this study was to explore the impact of different task constraints on mental load, and its consequences for individual and team performance in basketball small-sided games. **Method:** Twenty-four university students voluntarily took part in this study ($M_{\text{age}} = 20.81$ years [± 1.76]). Four different 3×3 basketball games were played: (A) free game, (B) seven seconds possession, (C) three passes maximum per attack phase, (D) conditions B and C combined. **Results:** Statistical analysis showed that constraints B, C and D produce more mental load, provoke differences in the affect response and the performance is worse. **Conclusion:** These results demonstrate the mental cost of restricting the time and number of passes, separately and combined to decide and act.

CASAS-GÓMEZ, P., SÁNCHEZ-SALGUERO, R., RIBERA, P. y LINARES, J.C., 2020. Contrasting signals of the westerly index and north atlantic oscillation over the drought sensitivity of tree-ring chronologies from the mediterranean basin. *Atmosphere* [en línea], vol. 11, no. 6. DOI 10.3390/atmos11060644

Extreme drought events are becoming increasingly frequent and extended, particularly in Mediterranean drought-prone regions. In this sense, atmospheric oscillations patterns, such as those represented by the North Atlantic Oscillation (NAO) index and the Westerly Index (WI) have been widely proven as reliable proxies of drought trends. Here, we used the Standardized Precipitation–Evapotranspiration Index (SPEI), as a reliable indicator of drought, to investigate the drought sensitivity of tree-ring width data (TRW) from several long-lived tree species (*Abies borisii-regis*, *Abies cilicica*, *Abies pinsapo*, *Cedrus atlantica*, *Cedrus libanii*, *Pinus nigra*, *Pinus heldreichii*). NAO and WI relations with TRW were also investigated in order to identify potential non-stationary responses among those drought proxies. Our temporal and spatial analyses support contrasting Mediterranean dipole patterns regarding the drought sensitivity of tree growth for each tree species. The spatial assessment of NAO and WI relationships regarding SPEI and TRW showed on average stronger correlations westward with non-stationary correlations between annual WI index and TRW in all species. The results indicate that the drought variability and the inferred drought-sensitive trees species (e.g., *C. atlantica*) are related to the NAO and the WI, showing that TRW is a feasible proxy to long-term reconstructions of Westerly Index (WI) variability in the Western Mediterranean region. Spatial variability of drought severity suggests a complex association between NAO and WI, likely modulated by an east–west Mediterranean climate dipole

CEBALLOS, M., NUNEZ, J. y TENORIO, A.F., 2020. Finite dimensional evolution algebras and (pseudo)digraphs. *Mathematical Methods in the Applied Sciences*, ISSN 0170-4214. DOI 10.1002/mma.6632.

In this paper, we focus on the link between evolution algebras and (pseudo)digraphs. We study some theoretical properties about this association and determine the properties of the (pseudo)digraphs associated with each type of evolution

algebras. We also analyze the isomorphism classes for each configuration associated with these algebras providing a new method to classify them, and we compare our results with the current classifications of two- and three-dimensional evolution algebras. In order to complement the theoretical study, we have designed and performed the implementation of an algorithm, which constructs and draws the (pseudo)digraph associated with a given evolution algebra and another procedure to study the solvability of a given evolution algebra.

CIALTI, P.-H., 2020. Extinción del contrato de trabajo. El despido del artículo 52 d) ET no supera(ba) el control de convencionalidad: STSJ Cataluña 17 de enero de 2020 ECLI: ES:TSJCAT:2020:1. *Temas laborales: Revista andaluza de trabajo y bienestar social*, no. 152, pp. 301-317. ISSN 0213-0750.

Eludiendo la cuestión del cumplimiento de los porcentajes legales que se cumplen, la sentencia núm.274/2020, de 17 de enero de 2020 de la Sala de lo Social del TSJ de Cataluña, de la que fue ponente el magistrado Carlos Hugo Preciado Domènech, procede a un control de convencionalidad y a un juicio de aplicabilidad del artículo 52 d) ET respecto a las normativas internacionales y europeas, al margen, por tanto, del control de constitucionalidad realizado por el Tribunal Constitucional en su controvertida Sentencia 118/2019. El TSJ de Cataluña plantea una serie de tres argumentos relativos al derecho a no ser despedido sin una justa causa, al derecho a la prevención de riesgos laborales y, finalmente, a la no discriminación por razón de sexo, adoptando una perspectiva de género. Llega a la conclusión de que la norma es inaplicable por vulnerar el derecho internacional y europeo, por lo que estima el recurso y declara el despido improcedente, por ausencia de causa legal. Esta Sentencia viene a complementar la compleja interrelación de sentencias de varios tribunales nacionales e internacionales sobre el despido basado en ausencias debidas a la salud, mediante un control de convencionalidad exhaustivo del art. 52 d) ET. En este marco, resulta interesante comparar la argumentación del TSJ con la de los demás pronunciamientos, así como la de la exposición de motivos del RDL 4/2020 de 18 de febrero, que abroga el artículo 52 d) ET. En este periodo de cuatro meses, entre la STC 118/2019, de 16 de octubre de 2019, y el RDL 4/2020, esta sentencia del TSJ de Cataluña ofrece una base argumental sólida y singular, que justifica el presente comentario.

COLLADO CAMPAÑA, F. y JIMÉNEZ-DÍAZ, J.-F., 2020. El pensamiento político de Max Weber después de la Gran Guerra: sobre la democracia de líder. *Ciencia política en la nueva política, Salamanca 10-12 de julio 2019: XIV Congreso Español de Ciencia Política y de la Administración*. S.l.: Asociación Española de Ciencia Política y de la Administración, pp. 5-0. ISBN Asociación Española de Ciencia Política y de la Administración.

La presente ponencia estudia el pensamiento político de Max Weber en su madurez y, en concreto, tras su vivencia del gran desastre que para él supuso la Primera Guerra Mundial (1914-1918). Sin duda, tal desastre influyó en la redefinición de dicho pensamiento a través del concepto de democracia de líder, que desarrolló el

pensador en *Escritos políticos* (1917-1918) y en *La política como profesión* (1919). Weber fue uno de los pensadores que más directa y claramente planteó el vínculo entre este par de términos (democracia y líder) tan vigente en el desarrollo de las democracias contemporáneas. En este sentido, el autor alemán mostró gran interés por estudiar la democracia después de conocer los estudios de Gaetano Mosca (1896), Moisei Ostrogorski (1902) y Robert Michels (1911). En parte siguiendo a estos autores, pero imprimiendo un carácter genuino a sus escritos y entreverados de su experiencia vital, Weber desarrolló una perspectiva sociológica e histórica en el estudio de la democracia de líder. Esta perspectiva parte del supuesto de que la parte activa en la vida política es una minoría dirigente formada en la lucha política, con capacidad de organizarse y de discutir sobre los asuntos públicos, así como interesada en influir en las decisiones políticas. En cambio, la parte pasiva de la política está constituida por la ciudadanía alejada de la esfera pública, con escasa formación política, poco preparada para organizar sus intereses y, por ende, con casi nula capacidad de influir en los asuntos públicos. A este respecto, y a la luz del gran abismo que se abre entre la clase dirigente y el resto de la comunidad política, Weber esbozó el siguiente dilema elitista-democrático que caracteriza a los regímenes democráticos: elegir entre democracia de líder carismático con partido o democracia sin líderes tutelada por políticos profesionales sin cualidades para liderar.

CONTRERAS MAZARÃ-O, J.M., 2020. El borrador «no nato» de la Ley Orgánica de Conciencia y Religiosa, de 2009. *Derecho y religión*, no. 15, pp. 135-150. ISSN 1887-3243.

En el presenta trabajo se va a abordar una realidad que tuvo lugar los años 2008 y 2009 y que tenía por objeto principal la Ley Orgánica de Libertad Religiosa. Este hecho no fue otro que la elaboración de una Ley Orgánica, la cual nunca llegó a ver la luz, pero respecto de la cual tuve la suerte de ser uno de sus actores. Dado que ahora celebramos el 40 aniversario de la LOLR y también puede decirse el 10 aniversario de este borrador, he entendido necesario y quizás oportuno abordar, en esta breve reseña, el cómo y el qué del reseñado proyecto no nato, con la única intención de darlo a conocer.

CRUZ-CHAMORRO, I., ÁLVAREZ-SÁNCHEZ, N., SANTOS-SÁNCHEZ, G., PEDROCHE, J., FERNÁNDEZ-PACHÓN, M.-S., MILLÁN, F., MILLÁN-LINARES, M.C., LARDONE, P.J., BEJARANO, I., GUERRERO, J.M. y CARRILLO-VICO, A., 2020. Immunomodulatory and antioxidant properties of wheat gluten protein hydrolysates in human peripheral blood mononuclear cells. *Nutrients*, vol. 12, no. 6, pp. 1-12. DOI 10.3390/nu12061673.

Peptides from several plant food proteins not only maintain the nutritional values of the original protein and decrease the environmental impact of animal agriculture, but also exert biological activities with significant health-beneficial effects. Wheat is the most important food grain source in the world. However, negative attention on wheat-based products has arose due to the role of gluten in celiac disease. A

controlled enzymatic hydrolysis could reduce the antigenicity of wheat gluten protein hydrolysates (WGPHs). Therefore, the aims of the present study were to evaluate the effects of the in vitro administration of Alcalase-generated WGPHs on the immunological and antioxidant responses of human peripheral blood mononuclear cells (PBMCs) from 39 healthy subjects. WGPH treatment reduced cell proliferation and the production of the Type 1 T helper (Th1) and Th17 pro-inflammatory cytokines IFN- γ and IL-17, respectively. WPGHs also improved the cellular anti-inflammatory microenvironment, increasing Th2/Th1 and Th2/Th17 balances. Additionally, WGPHs improved global antioxidant capacity, increased levels of the reduced form of glutathione and reduced nitric oxide production. These findings, not previously reported, highlight the beneficial capacity of these vegetable protein hydrolysates, which might represent an effective alternative in functional food generation.

DELGADO-BAQUERIZO, M., GUERRA, C.A., CANO-DÍAZ, C., EGIDI, E., WANG, J.-T., EISENHAUER, N., SINGH, B.K. y MAESTRE, F.T., 2020. The proportion of soil-borne pathogens increases with warming at the global scale. *Nature Climate Change*, vol. 10, no. 6, pp. 550-554. DOI 10.1038/s41558-020-0759-3.

Understanding the present and future distribution of soil-borne plant pathogens is critical to supporting food and fibre production in a warmer world. Using data from a global field survey and a nine-year field experiment, we show that warmer temperatures increase the relative abundance of soil-borne potential fungal plant pathogens. Moreover, we provide a global atlas of these organisms along with future distribution projections under different climate change and land-use scenarios. These projections show an overall increase in the relative abundance of potential plant pathogens worldwide. This work advances our understanding of the global distribution of potential fungal plant pathogens and their sensitivity to ongoing climate and land-use changes, which is fundamental to reduce their incidence and impacts on terrestrial ecosystems globally.

DELGADO-VÁZQUEZ, Á.M., 2020. ¿Pero de verdad saben qué es el acceso abierto? *PH: Boletín del Instituto Andaluz del Patrimonio Histórico*, vol. 28, no. 100, pp. 140-141. ISSN 1136-1867.

El desconocimiento del acceso abierto por parte de los investigadores en formación incide negativamente en su uso como alternativa al uso masivo de las herramientas que dan soporte al conocido como black open access a la hora de acceder a las publicaciones científicas. De igual modo, esto unido a la dificultad de uso de los repositorios en comparación con las redes sociales científicas, incide significativamente a la hora de comprometerse con el depósito de sus propias investigaciones.

DRAKULIC, D., DJUROVIC, S., SYED, Y.A., TRATTARO, S., CAPORALE, N.,

FALK, A., OFIR, R., HEINE, V.M., CHAWNER, S.J.R.A., RODRIGUEZ-MORENO, A., VAN DEN BREE, M.B.M., TESTA, G., PETRAKIS, S. y HARWOOD, A.J., 2020. Copy number variants (CNVs): a powerful tool for iPSC-based modelling of ASD. *Molecular Autism*, vol. 11, no. 1, pp. 42. ISSN 2040-2392. DOI 10.1186/s13229-020-00343-4.

Patients diagnosed with chromosome microdeletions or duplications, known as copy number variants (CNVs), present a unique opportunity to investigate the relationship between patient genotype and cell phenotype. CNVs have high genetic penetrance and give a good correlation between gene locus and patient clinical phenotype. This is especially effective for the study of patients with neurodevelopmental disorders (NDD), including those falling within the autism spectrum disorders (ASD). A key question is whether this correlation between genetics and clinical presentation at the level of the patient can be translated to the cell phenotypes arising from the neurodevelopment of patient induced pluripotent stem cells (iPSCs). Here, we examine how iPSCs derived from ASD patients with an associated CNV inform our understanding of the genetic and biological mechanisms underlying the aetiology of ASD. We consider selection of genetically characterised patient iPSCs; use of appropriate control lines; aspects of human neurocellular biology that can capture in vitro the patient clinical phenotype; and current limitations of patient iPSC-based studies. Finally, we consider how future research may be enhanced to maximise the utility of CNV patients for research of pathological mechanisms or therapeutic targets.

FERNANDEZ ARRIBAS, G., 2020. Rethinking International Institutionalisation through Treaty Organs. *International Organizations Law Review*, vol. 17, no. 2, pp. 457-483. ISSN 1572-3739. DOI 10.1163/15723747-2019012.

Treaty organs constitute a new system of international cooperation. The lack of definition and regulation for these new entities and their particularities deserves in-depth analysis due to its proliferation, especially in the area of international environmental law. This article will analyse the establishment of treaty organs and will seek a definition that allows them to be differentiated from international organizations. It will give attention to the concept of a set of organs and legal personality to determine the differences between international organizations and treaty organs. Finally, the possible application of international institutional law to treaty organs will be studied.

FERNÁNDEZ MARTÍNEZ, M. del M., EGUIZÁBAL ROMÁN, I., LUQUE DE LA ROSA, A. y ORDÓÑEZ OLMEDO, E., 2020. La ética en la economía para una sociedad multiredes. *Gestión y formación audiovisual para crear contenidos en las redes sociales*. S.l.: McGraw-Hill Interamericana de España, pp. 681-688. ISBN McGraw-Hill Interamericana de España978-84-486-2037-0.

FERNANDEZ-GARCIA, S., SANCHO-BALSELLS, A., LONGUEVILLE, S., HERVE, D., GRUART, A., MARIA DELGADO-GARCIA, J., ALBERCH, J. y GIRALT, A., 2020. Astrocytic BDNF and TrkB regulate severity and neuronal activity in mouse models of temporal lobe epilepsy. *Cell Death & Disease*, vol. 11, no. 6, pp. 411. ISSN 2041-4889. DOI 10.1038/s41419-020-2615-9.

Astrocytes have emerged as crucial regulators of neuronal network activity, synapse formation, and underlying behavioral and cognitive processes. Despite some pathways have been identified, the communication between astrocytes and neurons remains to be completely elucidated. Unraveling this communication is crucial to design potential treatments for neurological disorders like temporal lobe epilepsy (TLE). The BDNF and TrkB molecules have emerged as very promising therapeutic targets. However, their modulation can be accompanied by several off-target effects such as excitotoxicity in case of uncontrolled upregulation or dementia, amnesia, and other memory disorders in case of downregulation. Here, we show that BDNF and TrkB from astrocytes modulate neuronal dysfunction in TLE models. First, conditional overexpression of BDNF from astrocytes worsened the phenotype in the lithium-pilocarpine mouse model. Our evidences pointed out to the astrocytic pro-BDNF isoform as a major player of this altered phenotype. Conversely, specific genetic deletion of BDNF in astrocytes prevented the increase in the number of firing neurons and the global firing rate in an in vitro model of TLE. Regarding to the TrkB, we generated mice with a genetic deletion of TrkB specifically in hippocampal neurons or astrocytes. Interestingly, both lines displayed neuroprotection in the lithium-pilocarpine model but only the mice with genetic deletion of TrkB in astrocytes showed significantly preserved spatial learning skills. These data identify the astrocytic BDNF and TrkB molecules as promising therapeutic targets for the treatment of TLE.

FERNANDEZ-RODRIGUEZ, M.J., DE LA LAMA-CALVENTE, D., JIMENEZ-RODRIGUEZ, A., PINO-MEJIAS, R., BORJA, R. y RINCON, B., 2020. Impact of soft hydrothermal pre-treatments on the olive mill solid waste characteristics and its subsequent anaerobic digestion. *Biomass Conversion and Biorefinery*, ISSN 2190-6815. DOI 10.1007/s13399-020-00759-1.

The aim of this study was to investigate the effect of a soft hydrothermal pre-treatment (SHP) on olive mill solid waste (OMSW) and its subsequent anaerobic digestion (AD). OMSW was pre-treated in an autoclave at temperatures of 121 °C and 133 °C and excess pressures of 1.1 and 2.1 bars, respectively at heating times of 15, 20, and 30 min. The digestibility of pre-treated and untreated OMSW was determined in terms of methane potential through using biochemical methane potentials tests (BMP). Important solubilization of high-valuable compounds such as hydroxytyrosol and 3,4-dihydroxyphenylglycol was observed after pre-treatments. SHP showed a significant reduction in fiber length and width ($p < 0.05$). A higher polysaccharides solubilization was observed in treatment at 121 °C compared with that observed at 133 °C. SHP carried out at 121 °C, 1.1 bar (30 min) (pre-treatment A1), allowed obtaining the highest methane yield (380 ± 5 mL CH₄/g VS), which was 12.3% higher than that obtained for untreated OMSW. Pearson correlation (PEC) and principal component analysis (PCA) were carried out. PEC showed a positive correlation with phenol vanillic acid and PCA

grouped pre-treatment A1 with polysaccharides solubilization. The influence of the SHP conditions on the AD of OMSW was assessed through the monitoring of process performance and calculation of kinetic parameters by using the transference function model.

FERRI FUENTEVILLA, E., RODRÍGUEZ DÍAZ, Z.M. y RIVAS DAZA, M., 2020. Feminización del daño social. Análisis de la cotidianidad en camareras de piso y policía local tras un accidente laboral. *Prisma Social: revista de investigación social*, no. 29, pp. 195-221. ISSN 1989-3469.

Este artículo tiene como objetivo analizar el daño social ocasionado en mujeres y hombres tras un accidente laboral, entendiéndolo como la lesión o menoscabo que sufre una persona en su funcionalidad social (esfera personal, familiar, social y laboral) ante un hecho inesperado. Se parte de la premisa de que existe una feminización del daño social; es decir, con independencia de las particularidades de cada caso, las mujeres manifestarán mayor daño social en su cotidianidad debido fundamentalmente a los marcos de referencia (frames) patriarcales que propician una doble presencia femenina en el ámbito privado y público. Se han realizado un total de 12 entrevistas semiestructuradas a mujeres camareras de piso y mujeres y hombres policías locales con la intención de comparar una profesión altamente feminizada y otra masculinizada. Los principales resultados muestran que, tras un accidente laboral, en términos generales, las mujeres sufren mayor daño social debido fundamentalmente al liderazgo que ejercen en el ámbito privado, antes y después del accidente.

GARCÍA, C., CARDENETE FLORES, M.A., VENEGAS MARTÍNEZ, F. y CAMPOY-MUÑOZ, P., 2020. Valoración del impacto de la industria automotriz en la economía mexicana: una aproximación mediante matrices de contabilidad social. *El trimestre económico*, no. 346, pp. 437-461. ISSN 0041-3011. 10.20430/ete.v87i346.852

Antecedentes y objetivo: la industria automotriz mexicana se ha convertido en una de las más fuertes a nivel mundial; genera notables aportaciones al producto interno bruto (PIB) y crea empleos directos e indirectos, al promover la entrada de inversión extranjera directa (IED). El presente trabajo valora el impacto de la industria automotriz sobre la economía mexicana. Metodología: el desempeño de la industria automotriz en la estructura económica de México y su impacto sobre la economía por flujos de inversión se analizan mediante el uso de matrices de contabilidad social. Con la metodología propuesta se obtienen la clasificación de sectores y los multiplicadores de impacto y empleo. Posteriormente, se introduce un shock de inversión para analizar su efecto sobre los principales indicadores económicos del país. Resultados: la clasificación de sectores indica que la industria automotriz no está fuertemente ligada a la economía nacional. Los multiplicadores contables señalan que el sector presenta sensibilidad muy débil ante cambios en el resto de las cuentas. Los multiplicadores de empleo la catalogan como una industria con alto índice de productividad laboral. Además,

al simular un shock de inversión por expansión, se muestra que en esta condición la conexión con el resto de la economía es más fuerte y genera mayores flujos de capital, con las demás actividades productivas. Limitación: sólo hay datos completos y confiables de matrices de contabilidad social para 2012 en México actualizadas para el sector automotriz. Conclusiones: la industria automotriz se desarrolla de manera aislada del resto de la actividad económica, sin embargo, la evidencia empírica muestra que el impacto que este sector ejerce sobre el resto de la economía ante flujos de inversión es más fuerte, y, a su vez, se identifican aquellas actividades que son clave dentro de este proceso de expansión.

GARCÍA PÉREZ, J.I., 2020. Presentación: El patrimonio cultural en la provincia de Ciego de Ávila (Cuba). En: *El patrimonio cultural en la provincia de Ciego de Ávila (Cuba): Análisis de propuestas de ida y vuelta*. S.l.: Universidad Internacional de Andalucía, pp. 9-11. ISBN Universidad Internacional de Andalucía 978-84-7993-355-5.

Cuba y España tienen una larga historia común en la que, por encima de avatares de todo tipo, se ha impuesto una relación especial que ha perdurado en el tiempo. No solo hablamos el mismo idioma, sino que es difícil diferenciar el habla cubana de la canaria; Cádiz, La Habana o Santiago parecen ciudades gemelas; miles de cubanos y españoles tienen compartidos apellidos de origen andaluz, catalán, asturiano o gallego; las habaneras o la rumba nos unen con sus sones *de ida y vuelta*; en muchas partes de España aún se recuerda a los «rayaillos» y la Guerra de Cuba; y el español Antonio Gades contempla desde un pórtico palaciego la plaza de la Catedral de la Habana, ciudad en la que descansa. Tal es la relación, que en España, para relativizar algo negativo, se dice: «Más se perdió en Cuba». En esta historia común tiene su origen la actual provincia de Ciego de Ávila. Un territorio llano caracterizado por la importancia histórica de la agricultura y la ganadería, por la impronta omnipresente de la caña y la agroindustria azucarera; por su impresionante diversidad étnica y cultural; o por sus espacios naturales interiores y litorales. Y, sobre todo, por la Trocha militar de Júcaro a Morón, columna vertebral sobre la que se irá construyendo una identidad territorial, social y cultural que constituye hoy la naturaleza de los avileños: yacimientos arqueológicos prehispánicos; espacios naturales de gran belleza; arquitectura colonial y ecléctica; herencias culturales haitianas, jamaicanas, chinas y árabes; tradiciones de origen hispano; bateyes y grandes centrales azucareros; el ferrocarril; los restos de los fortines de La Trocha; el cultivo del tabaco y las manifestaciones culturales guajiras como el punto, el repentismo, las parrandas o los bandos.

GARCÍA-MOLINA, L., LEWIS-MIKHAEL, A.-M., RIQUELME-GALLEGO, B., CANO-IBÁÑEZ, N., OLIVERAS-LÓPEZ, M.-J. y BUENO-CAVANILLAS, A., 2020. Improving type 2 diabetes mellitus glycaemic control through lifestyle modification implementing diet intervention: a systematic review and meta-analysis. *European Journal of Nutrition*, vol. 59, no. 4, pp. 1313-1328. DOI

10.1007/s00394-019-02147-6.

Type 2 diabetes mellitus represents a significant health problem. Many studies have reported that intensive nutritional intervention by itself or in addition to medications is the best method to improve glycaemic control in type 2 diabetes mellitus. However, in clinical practice, dietary education is not implemented as an integral part in the management of type 2 diabetes mellitus. The purpose of this systematic review and meta-analysis is to analyse the scientific evidence concerning the role of nutritional intervention in the glycaemic control of type 2 diabetes mellitus. **Methods:** We searched Pubmed, Scopus, Cochrane Library and Web of Science databases from inception till May 2019 for randomised controlled trials (RCTs) that include dietary interventions in the management of patients with type 2 diabetes mellitus. **Results:** A total of 28 studies were included. Our results demonstrated that lifestyle interventions significantly lowered glycosylated haemoglobin (HbA_{1c}) levels compared to the usual care for patients with type 2 diabetes mellitus, overall weighted mean difference, WMD = - 0.51 (- 0.67, - 0.35). Strategies combining individualized and group-based activities were the most effective, WMD = - 0.95 (- 1.24, - 0.66). Most of stratified analyses did not totally resolve heterogeneity, but improvement in HbA_{1c} levels has been consistently observed. **Conclusions:** The available evidence from RCTs shows that lifestyle intervention is more effective than the standard care regarding the glycaemic control of type 2 diabetic patients, particularly when there is a weight loss. It is time to translate this evidence to the primary health care practice. The protocol of the present systematic review was registered in PROSPERO, registration number CRD42018090469.

GARCÍA-ROMERO, I., NOGALES, J., DÍAZ, E., SANTERO, E. y FLORIANO, B., 2020. Understanding the metabolism of the tetralin degrader *Sphingopyxis granuli* strain TFA through genome-scale metabolic modelling. *Scientific Reports*, vol. 10, no. 1, pp. 8651. ISSN 2045-2322. DOI 10.1038/s41598-020-65258-9.

Sphingopyxis granuli strain TFA is an α -proteobacterium that belongs to the sphingomonads, a group of bacteria well-known for its degradative capabilities and oligotrophic metabolism. Strain TFA is the only bacterium in which the mineralisation of the aromatic pollutant tetralin has been completely characterized at biochemical, genetic, and regulatory levels and the first *Sphingopyxis* characterised as facultative anaerobe. Here we report additional metabolic features of this α -proteobacterium using metabolic modelling and the functional integration of genomic and transcriptomic data. The genome-scale metabolic model (GEM) of strain TFA, which has been manually curated, includes information on 743 genes, 1114 metabolites and 1397 reactions. This represents the largest metabolic model for a member of the Sphingomonadales order thus far. The predictive potential of this model was validated against experimentally calculated growth rates on different carbon sources and under different growth conditions, including both aerobic and anaerobic metabolisms. Moreover, new carbon and nitrogen sources were predicted and experimentally validated. The constructed metabolic model was used as a platform for the incorporation of transcriptomic data, generating a more robust and accurate model. In silico flux

analysis under different metabolic scenarios highlighted the key role of the glyoxylate cycle in the central metabolism of strain TFA.

GARCIA-VELAZQUEZ, L., RODRIGUEZ, A., GALLARDO, A., MAESTRE, F.T., DOS SANTOS, E., LAFUENTE, A., FERNANDEZ-ALONSO, M.J., SINGH, B.K., WANG, J.-T. y DURAN, J., 2020. Climate and soil micro-organisms drive soil phosphorus fractions in coastal dune systems. *Functional Ecology*, ISSN 0269-8463. DOI 10.1111/1365-2435.13606.

The importance of soil phosphorus (P) is likely to increase in coming decades due to the growing atmospheric nitrogen (N) deposition originated by industrial and agricultural activities. We currently lack a proper understanding of the main drivers of soil P pools in coastal dunes, which rank among the most valued priority conservation areas worldwide. Here, we evaluated the joint effects of biotic (i.e. microbial abundance and richness, vegetation and cryptogams cover) and abiotic (i.e. pH and aridity) factors on labile, medium-lability and recalcitrant soil P pools across a wide aridity gradient in the Atlantic coast of the Iberian Peninsula. Climate determined the availability of medium-lability, recalcitrant and total P, but had a minor net effect on labile P, which was positively and significantly related to the presence of plants, mosses and lichens. Medium-lability P was significantly influenced by soil bacterial richness and abundance (positively and negatively, respectively). Our results suggest that micro-organisms transfer P from medium-lability pool to more labile one. At the same time, increases in bacterial richness associated to biofilms might be involved in the thickening of the medium-lability P pool in our climosequence. These bacterial-mediated transfers would confer resistance to the labile P pool under future climate change and uncover an important role of soil micro-organisms as modulators of the geochemical P cycle.

GAZOL, A., JULIO CAMARERO, J., SANCHEZ-SALGUERO, R., VICENTE-SERRANO, S.M., SERRA-MALUQUER, X., GUTIERREZ, E., DE LUIS, M., SANGUESA-BARREDA, G., NOVAK, K., ROZAS, V., TISCAR, P.A., LINARES, J.C., MARTINEZ DEL CASTILLO, E., RIBAS, M., GARCIA-GONZALEZ, I., SILLA, F., CAMISON, A., GENOVA, M., MIGUEL OLANO, J., HERES, A.-M., CURIEL YUSTE, J., ALBERTO LONGARES, L., HEVIA, A., TOMAS-BURGUERA, M. y DIEGO GALVAN, J., 2020. Drought legacies are short, prevail in dry conifer forests and depend on growth variability. *Journal of Ecology*, ISSN 0022-0477. DOI 10.1111/1365-2745.13435.

The negative impacts of drought on forest growth and productivity last for several years generating legacies, although the factors that determine why such legacies vary across sites and tree species remain unclear. We used an extensive network of tree-ring width (RWI, ring-width index) records of 16 tree species from 567 forests, and high-resolution climate and normalized difference vegetation index (NDVI) datasets across Spain during the common period 1982–2008 to test the hypothesis that climate conditions and growth features modulate legacy effects of drought on forests. Legacy effects of drought were calculated as the differences between detrended-only RWI and NDVI series (i.e. after removing long-term growth

trends) and pre-whitened RWI and NDVI series predicted by a model including drought intensity. Superposed Epoch Analysis (SEA) was used to estimate whether legacy effects differed from random. Finally, legacy effects were related to water balance, growth persistence and variability, and tree species identity. We found a widespread occurrence of drought legacy effects on both RWI and NDVI, but they were seldom significant. According to SEA, first-year drought legacies were negative and different from random in 9% and 5% of the RWI and NDVI series respectively. The number of significant second- and third-year legacies was substantially lower. Differences between RWI and NDVI legacies indicate that canopy greenness and radial growth responses to drought are decoupled. We found variations in legacies between tree species with gymnosperms presenting larger first-year drought legacies than angiosperms, which were exposed to less severe droughts. Greater growth variability can explain the presence of first-year RWI legacies in gymnosperms from dry sites despite that the relationship between growth variability and legacies was complex. *Synthesis*. Accounting for species and site responses to drought provides a better understanding of the magnitude and duration of drought legacies on forest growth and productivity. Despite the widespread occurrence of growth reductions in the years during and after drought occurrence, significant legacies were not very common, mostly lasted one year, and were more widespread in gymnosperms. These are relevant factors to be considered in the future when studying the consequences of drought on forest productivity and tree growth

GÓMEZ BUENO, C. y MARTÍN CRIADO, E., 2020. Discrepancias entre progenitores e hijos en las encuestas sobre familia y educación. *Revista De Educación*, no. 388, pp. 11-38. ISSN 0034-8082. 10.4438/1988-592X-RE-2020-388-445

Las encuestas sobre familia y educación suelen realizarse a progenitores. ¿Cambiarían los resultados encuestando a hijos e hijas? Para verlo, analizamos las discrepancias entre las respuestas parentales y filiales a 16 preguntas formuladas a ambos en la Encuesta Social 2010 de Andalucía que interroga a progenitores e hijos de dos cohortes: 12 y 16 años. Para medir la discrepancia calculamos el coeficiente de concordancia simple, el coeficiente Kappa y el coeficiente de correlación intraclase. Continuamos los análisis comparando, mediante tablas de contingencia, las respuestas de progenitores y descendientes a las mismas cuestiones, controlando por nivel de estudios parentales. Nuestro principal resultado es que, aunque las discrepancias son pequeñas, tienen amplias consecuencias para los análisis: controlando por nivel de estudios parentales obtenemos resultados distintos preguntando a progenitores o hijos e hijas. Preguntando a progenitores, los estratos superiores aparecen más acordes al discurso legítimo sobre la educación de sus descendientes y las distancias entre estratos sociales son estadísticamente significativas en más ocasiones. Una posible explicación es que hay más efecto de deseabilidad social en los progenitores y actúa en sentidos distintos en los diferentes estratos sociales.

GONZÁLEZ FARACO, J.C., GONZÁLEZ FALCÓN, I. y RODRÍGUEZ-IZQUIERDO, R.M., 2020. Políticas inter-culturales en la escuela: significados, disonancias y

paradojas. *Revista De Educación*, no. 387, pp. 67-88. ISSN 0034-8082. 10.4438/1988-592X-RE-2020-387-438

The school uses, for the attention of foreign students, different well-meaning devices that define and measure the difference, recognize its exclusionary potential and seek to address it through various intercultural and inclusive policies. This paper analyzes one of these devices: the Temporary Classroom of Linguistic Adaptation (TCLA). Its purpose is to detect possible disagreements between the pedagogical actions that these classrooms promote, and the logic that sustains and justifies them. In other words, the contradictions and paradoxes that can occur between their normative-political discourses and their apparently inclusive practices. This study, basically ethnographic, has taken as fundamental epistemological references the approach or "problematic of knowledge" and "critical interculturality". Through a series of field observations and interviews with the main actors involved, the aim is to learn about the practices derived from the application of this device, how they are valued and how the meaning of dual inclusion-exclusion is interpreted in multicultural educational contexts. Specifically, twenty-eight interviews were conducted with directors, TCLA teachers and young people of foreign origin from various schools in four provinces of Andalusia (Cádiz, Granada, Huelva and Seville). The results of their analysis reveal a set of discordances that invite us to question the intercultural and inclusive meaning of these specific classrooms. In most cases, their pedagogical support is merely compensatory. In reality, its primary objective is to normalize difference, understanding it as a double deficiency, cultural and curricular, that must be compensated or corrected. In schooling, systems of reason that assign identity to subjects operate, often quietly. Their effects are especially evident in devices, such as these parallel classrooms, associated with policies of equity and attention to cultural diversity. Even if they claim to respond to inclusive policies, they can encourage segregation, discrimination and exclusion.

GONZALEZ, P., 2019. On the design of equity-oriented pharmaceutical copayments. *Series-Journal of the Spanish Economic Association*, ISSN 1869-4187. DOI 10.1007/s13209-019-00207-y.

Abstract In this paper, we propose a new approach to address the problem of designing pharmaceutical copayments. The rationale for positive copayments in our setting lies in the presence of budgetary constraints and, hence, in the need to raise funds in order to finance the costs of the treatments. We use results from the literature on axiomatic bargaining with claims to incorporate criteria of distributive justice into the design of copayments. We find that if the government constrains patient rights to what is medically feasible, equity-based copayments vary from a percentage of the cost of the treatment, to a flat rate per prescription. If the government also takes into account the burden of disease experienced by patients, then copayments based on equity lead to a relation between copayments and clinical status that diverges from those proposals based on efficiency arguments. In particular, we show that equity-based copayments might be increasing in the health gains that the treatments provide to the patients. The reason is that these copayments try to avoid a "double jeopardy" problem, by ensuring that those

patients with a large burden of disease do not face also an important monetary cost.

GONZALEZ-FONTES, A., 2020. Why boron is an essential element for vascular plants A comment on Lewis (2019) «Boron: the essential element for vascular plants that never was». *New Phytologist*, vol. 226, no. 5, pp. 1228-1230. ISSN 0028-646X. DOI 10.1111/nph.16033.

Recently, Professor David H. Lewis has raised a debate about the role of boron as an essential element for vascular plants. In an original and challenging article (Lewis, **2019**), this author questioned the essentiality of boron and postulated that it is a potentially toxic element for plants, and that its toxicity is minimized due to the ability of boric acid to bind to compounds containing *cis*-hydroxyl groups. He stated that, according to the published evidence, boron does not meet one of the criteria for essentiality reported by Arnon & Stout (**1939**), namely, that boron effects are direct. His hypothesis is based on the assumption that soluble phenolic metabolites involved in the lignin biosynthesis pathway would act as the primary candidates for bonding to boric acid, given that these compounds are themselves potentially toxic (Lewis, **2019**). Thus, the inherent toxicities of both boric acid and phenylpropanoids would be mutually alleviated by the formation of complexes between them, and normal growth and development of vascular plants would be allowed. In consequence, following Lewis' (2019) Viewpoint, the various effects described by many researchers as boron deficiency symptoms would be largely owing to the toxicity of free phenolics. Accordingly, this would fully explain why when boron is absent in the environment, present at low concentrations or removed from the culture medium, the neutralizing agents that are being continuously synthesized in the cell would themselves exert toxic effects, in this way appearing as symptoms of boron deficiency (Lewis, **2019**). Although Lewis' hypothesis seems well founded, in my opinion, several experimental results should be kept in mind before accepting that boron is not an essential element in vascular plants.

GONZÁLEZ-FONTES, A. y FUJIWARA, T., 2020. Advances in plant boron. *International Journal of Molecular Sciences*, vol. 21, no. 11, pp. 1-3. DOI 10.3390/ijms21114107.

Although very recently, David H. Lewis has raised an interesting debate about the essentiality of boron (B) in vascular plants, the requirement for B in many phases of plant development has been accepted for almost a century. B is an essential element that, in both boric and borate forms, can form complexes with a wide variety of organic compounds containing *cis*-diol groups. In fact, there is clear evidence for a crucial role of B in the formation of diester bonds between the borate anion and the apiose residues of two rhamnogalacturonan II monomers, which provide mechanical strength to the cell wall, but compelling evidence for the participation of B in other cellular activities is currently challenging

GONZÁLEZ-SÁNCHEZ, M., BARTOLOME, F., ANTEQUERA, D., PUERTAS-MARTÍN, V., GONZÁLEZ, P., GÓMEZ-GRANDE, A., LLAMAS-VELASCO, S., HERRERO-SAN MARTÍN, A., PÉREZ-MARTÍNEZ, D., VILLAREJO-GALENDE, A., ATIENZA, M., PALOMAR-BONET, M., CANTERO, J.L., PERRY, G., ORIVE, G., IBAÑEZ, B., BUENO, H., FUSTER, V. y CARRO, E., 2020. Decreased salivary lactoferrin levels are specific to Alzheimer's disease. *EBioMedicine*, pp. 102834. DOI 10.1016/j.ebiom.2020.102834.

Evidences of infectious pathogens in Alzheimer's disease (AD) brains may suggest a deteriorated innate immune system in AD pathophysiology. We previously demonstrated reduced salivary lactoferrin (Lf) levels, one of the major antimicrobial proteins, in AD patients. To assess the clinical utility of salivary Lf for AD diagnosis, we examine the relationship between salivary Lf and cerebral amyloid- β ($A\beta$) load using amyloid-Positron-Emission Tomography (PET) neuroimaging, in two different cross-sectional cohorts including patients with different neurodegenerative disorders. The diagnostic performance of salivary Lf in the cohort 1 had an area under the curve [AUC] of 0.95 (0.911–0.992) for the differentiation of the prodromal AD/AD group positive for amyloid-PET (PET⁺) versus healthy group, and 0.97 (0.924–1) versus the frontotemporal dementia (FTD) group. In the cohort 2, salivary Lf had also an excellent diagnostic performance in the health control group versus prodromal AD comparison: AUC 0.93 (0.876–0.989). Salivary Lf detected prodromal AD and AD dementia distinguishing them from FTD with over 87% sensitivity and 91% specificity.

GRANADA PULAMARÍN, W.D., RUIZ SORIANO, M.Á., MIGUEL VICENTE, C. y BRIHUEGA SÁNCHEZ, M.C., 2020. Las prácticas externas, el paso previo a la inserción laboral del estudiantado con diversidad funcional de la Universidad Complutense de Madrid. En: E. y Discapacidad. E. social CONGRESO NACIONAL DE EMPRENDIMIENTO ocupación y discapacidad (ed.), *Emprendimiento social, ocupación y discapacidad: II Congreso Nacional de Emprendimiento, Empleo y Discapacidad*. S.l.: Universitat Jaume I, pp. 19-0. ISBN 978-84-17900-12-0.

Desde los años noventa, las universidades se enfrentan a nuevos retos relacionados con la igualdad de oportunidades, debido a los cambios que se han producido en el perfil de sus estudiantes. La Universidad Complutense de Madrid tiene entre sus objetivos el acercar la formación universitaria a la realidad social y profesional. Para ello se establecen relaciones con instituciones externas, que permitan completar el proceso formativo del estudiante con una puesta en práctica de los conocimientos teórico-prácticos adquiridos. Desde esta perspectiva se tiene como objetivos mostrar el perfil de estudiantes universitario con diversidad funcional que han participado en las becas-prácticas extracurriculares en empresas, dentro del Programa de Fundación ONCE-CRUE y visibilizar la realidad actual y las propuestas de mejora en este campo desde la óptica de los agentes implicados: estudiantes, empresas y universidad. Se trata de un estudio de carácter exploratorio descriptivo. La metodología utilizada se ha centrado en una revisión de los criterios de diversidad en la elección y el seguimiento del proceso de incorporación del estudiantado a la empresa mediante la matriz FODA y la estrategia CAME. Los resultados permiten concluir que este programa tiene un

impacto positivo tanto para el estudiantado participante como para el resto de los agentes implicados. Si bien este impacto es una oportunidad para la incorporación al mercado laboral, hay que realizar un estudio longitudinal para analizar su repercusión a largo plazo.

HERNANDEZ HERNANDEZ, E., 2020. ¿Entrenamos como bloqueamos? Estudio de caso aplicado a la superliga de voleibol masculina. *JUMP: Journal of Universal Movement and Performance*, no. 1, pp. 9-16. ISSN 2695-6713. 10.17561/jump.n1.1

El objetivo del estudio fue revisar cómo se debe enseñar la técnica de desplazamiento en bloqueo, en función de lo que indican los manuales de entrenamiento; y posteriormente, comprobar las técnicas utilizadas por los jugadores centrales de la liga española de voleibol. Para ello, se realizó una revisión bibliográfica de los principales artículos y manuales de entrenamiento, sobre la técnica de ejecución del desplazamiento y bloqueo en voleibol. Para el estudio de los bloqueadores se utilizó una muestra compuesta por 275 acciones de bloqueo realizadas por los jugadores centrales (11 partidos analizados), correspondientes a la primera vuelta de la liga 2016-17. Se utilizó un diseño descriptivo, observacional no participante. Se consideró como variable de medida la técnica de desplazamiento y el tipo de movimiento de brazos utilizados por los jugadores al bloquear. Los resultados muestran que la técnica más utilizada por los jugadores para desplazarse son los pasos cruzados; y la técnica del “chicken wing” para el movimiento de brazos. En las aplicaciones prácticas se realizan aportaciones de cara al entrenamiento de estos jugadores, con la finalidad de adaptar mejor los contenidos del entrenamiento a la forma real con la que se juega en competición.

HERNÁNDEZ JIMÉNEZ, H.M., 2020. La afección del estado de alarma a los procedimientos urbanísticos. *Consultor de los ayuntamientos y de los juzgados: Revista técnica especializada en administración local y justicia municipal*, no. 6, pp. 21- 0. ISSN 0210-2161.

La profusión normativa que se está produciendo durante la vigencia del estado de alarma, está provocando que muchas de las determinaciones no están dotadas de la suficiente claridad, lo que genera, a su vez, una sensación de inseguridad jurídica en el administrado y en el aplicador del derecho. Esta circunstancia es la que está ocurriendo en la actualidad con la suspensión de los plazos administrativos en relación con los procedimientos urbanísticos y el acuerdo de levantamiento de la suspensión con efectos desde el 1 de junio de 2020.

HERRERO BLANCO, C. y ANTONIO VILLAR, 2020. A synthetic indicator on the impact of COVID-19 on community's health. *Working papers = Documentos de trabajo: Serie AD*, no. 2, pp. 1- 0. 10.12842/WPAD-2020-02

We present in this paper an indicator that approaches the impact of COVID-19 on the community's health, at this early stage of the pandemic. It consists of the product of the extent (ratio of those affected over the population) and a measure of severity (the intensity of the disease on those affected). We concentrate on the population of those seriously affected by the illness, rather than those infected, given the available data. The severity measure derives from the application of an evaluation protocol that allows comparing population distributions based on the proportions of those affected with different health conditions (the balanced worth, developed by Herrero & Villar (2013, 2018)). We illustrate the functioning of this indicator over a case study regarding the situation of the Italian regions on March 9 (the beginning of the confinement) and April 8th, 2020, one month later.

HEVIA, A., CAMPELO, F., CHAMBEL, R., VIEIRA, J., ALIA, R., MAJADA, J. y SANCHEZ-SALGUERO, R., 2020. Which matters more for wood traits in *Pinus halepensis* Mill., provenance or climate? *Annals of Forest Science*, vol. 77, no. 2, pp. 55. ISSN 1286-4560. DOI 10.1007/s13595-020-00956-y.

Intra-annual wood density fluctuations are valuable indicators of the role of the local climate and provenance origins on tree growth. These intra-ring wood features were the most informative about local adaptation and phenotypic plasticity of *Pinus halepensis* Mill. in a provenance trial. This highlights the importance of taking provenance into account when selecting forest reproductive material to mitigate the effects of climate change.

HIDALGO ROMERO, R., 2020. Formulación, verificación y aprobación de cuentas anuales de las sociedades de capital en el contexto de la crisis sanitaria provocada por el covid-19. *Revista Aranzadi Doctrinal*, no. 6, pp. 5- 0. ISSN 1889-4380.

This paper contains an urgent commentary on the regulations on the formulation, audit and approval of the annual accounts of unlisted public and private limited liability companies in the context of the health crisis caused by COVID-19

HOMBRIA, J.C.-G. y SOTILLOS, S., 2020. Evo-Devo: When Four Became Two Plus Two. *Current Biology*, vol. 30, no. 11, pp. R655-R657. ISSN 0960-9822. DOI 10.1016/j.cub.2020.04.022.

Wings and halteres are homologous flight appendages whose shape differences are controlled by the Ubx transcription factor. Recent research shows how Ubx regulates apical and basal extracellular matrix proteases and their inhibitors to achieve this morphological divergence.

HUAULME, Q., MWALUKUKU, V.M., JOLY, D., LIOTIER, J., KERVELLA, Y.,

MALDIVI, P., NARBEY, S., OSWALD, F., RIQUELME, A.J., ANTA, J.A. y DEMADRILLE, R., 2020. Photochromic dye-sensitized solar cells with light-driven adjustable optical transmission and power conversion efficiency. *Nature Energy*, vol. 5, no. 6, pp. 468-477. ISSN 2058-7546. DOI 10.1038/s41560-020-0624-7.

Semi-transparent photovoltaics only allow for the fabrication of solar cells with an optical transmission that is fixed during their manufacturing resulting in a trade-off between transparency and efficiency. For the integration of semi-transparent devices in buildings, ideally solar cells should generate electricity while offering the comfort for users to self-adjust their light transmission with the intensity of the daylight. Here we report photochromic dye-sensitized solar cells (DSSCs) based on dyes with a donor- π -conjugated-bridge-acceptor structure where the π -conjugated bridge is substituted by a diphenyl-naphthopyran photochromic unit. DSSCs show change in colour and self-adjustable light transmittance when irradiated and demonstrate a power conversion efficiency up to 4.17%. The colouration–decolouration process is reversible and these DSSCs are stable over 50 days. We also report semi-transparent photo-chromo-voltaic mini-modules (active area of 14 cm²) exhibiting a maximum power output of 32.5 mW after colouration.

HUERTA-ÁLVAREZ, R., CAMBRA-FIERRO, J.J. y FUENTES-BLASCO, M., 2020. The interplay between social media communication, brand equity and brand engagement in tourist destinations: An analysis in an emerging economy. *Journal of Destination Marketing and Management* [en línea], vol. 16. DOI 10.1016/j.jdmm.2020.100413.

The consolidation of Web 2.0 has modified the way people communicate and interact with tourists. User-generated social media communication continues to increase: to the detriment of traditional media channels, where the message is controlled by destination marketing organizations. Moreover, uncontrolled user-generated communication is increasingly considered more reliable than traditional, controlled communication. All this has considerably modified tourist perceptions regarding destination image and brand equity. From a business perspective, a line of thought addressing the study of these interrelationships has emerged in the literature, going so far as to consider their impact on brand engagement. Despite the current prevalence and relevance of social media communication as a loyalty-building factor in a context as competitive as the tourism sector, relatively little literature has addressed it in emerging tourist destination scenarios. Hence, the present paper presents an analysis of how – and to what extent – social media communication, both controlled and uncontrolled by the destination organization, has an impact on destination brand equity and destination brand engagement. More specifically, this study applies it to an emerging economy scenario: Metropolitan Lima, Peru. The implications of our research, presented at the end of the paper, are of interest – both as a contribution to the literature and from the perspective of tourist destination management – and can serve to aid the economic and social development of emerging economies.

IBÁÑEZ, M.E., FERRER, D.M., MUÑOZ, L.V.A., CLAROS, F.M. y RUIZ, F.J.O., 2020. University as change manager of attitudes towards environment (The importance of environmental education). *Sustainability (Switzerland)* [en línea], vol. 12, no. 11. DOI 10.3390/su12114568.

The university is an essential participant in education, a key place where societal change processes are developed. So, it must be a place to bring up current challenges and social requirements. That is the reason why it holds the responsibility to assure the creation of knowledge, skills, attitudes, and values in the students to achieve an effective solution to environmental issues. The objective of this research was the assessment of the attitudes, knowledge, and pro-environmental behavior in university students from different faculties, studies, and degrees, as well as their influence in this group. The results show that most of the students have previous concepts of environment, and they consider that a good environmental education is necessary to solve the environmental issues that they have around. This proves that key factors in attitudes become essential elements for changing them. The differences made by gender and studies in several fields in attitudes (cognitive and emotional levels) are also confirmed.

JIMÉNEZ-SALCEDO, J., 2020. Le débat autour du bilinguisme des juges à la Cour suprême du Canada: analyse de la doctrine et des débats parlementaires. *International Journal for the Semiotics of Law*, vol. 33, no. 2, pp. 325-351. DOI 10.1007/s11196-020-09709-6

Il n'existe aucune disposition législative ou constitutionnelle qui oblige les juges de la Cour suprême du Canada à maîtriser le français, pourtant l'une des deux langues officielles du pays. Ceci est d'autant plus surprenant que ces juges doivent déterminer la constitutionnalité de décisions liées à des causes parfois débattues en français auprès d'instances inférieures, ou encore être capables d'interpréter la législation bilingue du Canada. Ils doivent également être capables de lire l'abondante doctrine québécoise en matière de droit civil, majoritairement publiée en français. Pour résoudre ce problème, plusieurs projets de loi ont été déposés à la Chambre des communes depuis 2008, leur but étant de rendre obligatoire le bilinguisme des juges. Ils ont été longuement débattus à la Chambre et au Sénat, produisant un vaste corpus de discours. Parallèlement, la doctrine juridique francophone s'est emparée du débat et a avancé des arguments intéressants. Ces deux sources – les débats parlementaires et la doctrine – constituent un ensemble cohérent que nous analyserons dans cet article au moyen de trois fils conducteurs: le droit à être compris par un juge comme un droit linguistique, la considération du bilinguisme comme une compétence juridique, de même que la définition du degré de bilinguisme nécessaire pour remplir les obligations de juge à la Cour suprême.

LÓPEZ-MENESES, E., VÁZQUEZ-CANO, E., GONZÁLEZ-ZAMAR, M.-D. y ABAD-SEGURA, E., 2020. Socioeconomic effects in cyberbullying: Global

research trends in the educational context. *International Journal of Environmental Research and Public Health*, vol. 17, no. 12, pp. 1-31. DOI 10.3390/ijerph17124369.

Nowadays, cyberbullying has become a problem of social harassment in numerous educational centres worldwide. New communication technologies have provided the perfect support for the development of this type of harassment in peer relationships, in addition to being linked to broad social and economic circumstances. In this study, the global trends of the socioeconomic implications of cyberbullying in the educational context have been analysed, from 2004 to 2019. Thus, a bibliometric analysis has been applied to 1128 articles, obtaining results of the evolution of scientific activity in this period. The articles are mainly associated with the thematic areas of Social Sciences, Psychology, Medicine and Computer Science. Seven main thematic axes have been detected, highlighting those related to the psychological aspect, adolescence, and the school environment. Likewise, the link of the main authors, institutions, and countries to these lines of research has been detected. The evidence has shown the interest and relevance of this topic at the international level. Future research lines propose different analyses about how certain socioeconomic factors influence this psychological harassment inside and outside the classroom.

MAAITAH, M., HODAIFA, G., MALVIS, A. y SANCHEZ, S., 2020. Kinetic growth and biochemical composition variability of *Chlorella pyrenoidosa* in olive oil washing wastewater cultures enriched with urban wastewater. *Journal of Water Process Engineering*, vol. 35, pp. 101197. ISSN 2214-7144. DOI 10.1016/j.jwpe.2020.101197.

Olive mills generates wastewaters (OMWs) characterized by high organic and inorganic load, which includes sugars, phenolic compounds, polyalcohols, pectins, lipids, Na, K, Ca ..., but deficient in nitrogen and phosphorus. Urban wastewater treatment plants with primary (natural sedimentation) and secondary (biological removal) treatments are unable to remove the total nitrogen and phosphorus from these wastewaters, which can be therefore considered as a sustainable source of both nutrients. The enrichment of OMW with urban wastewater from secondary treatment (UW) can provide optimal nutrient concentrations to produce an algal biomass with high added value. *Chlorella pyrenoidosa* is a green unicellular alga that can eliminate nutrients and produce biomass with high lipids content. Experiments have been carried out in photobioreactors of 0.5 L useful capacity. Different enriched dilutions of olive oil washing wastewater (OOWW) with ultrapure water (%OOWW_{enriched} = 5–100% v/v) were prepared as culture media. Common operating conditions were pH 8, aeration level 1 v/v/min, initial illumination intensity 126.2 $\mu\text{E}/(\text{m}^2 \text{s})$ under 12 h light/12 h dark cycles and temperature of 25 °C. Results obtained showed that the highest values of maximum specific growth rate and volumetric biomass productivity were $\mu_m = 0.0203 \text{ h}^{-1}$ and $P_b = 1.73 \times 10^{-3} \text{ g}/(\text{L h})$, respectively. Maximum percentages of chlorophylls (0.96 %) and carotenoids (0.24 %) were obtained in the final biomass of the culture formed by 30 % (v/v) of OOWW_{enriched}. The highest proteins (43.7

%) and lipids (51.5 %) contents were obtained in the biomass from the culture medium with 100 % (v/v) of OOWW_{enriched}, which is suitable for biofuel production. Final treated water could be discharged into water public channels, used in irrigation or as drinking water if other operation units such as ultrafiltration and reverse osmosis are added to the bioprocess.

MACARRO OSUNA, J.M., 2020. La acumulación de sanciones administrativa y penal en el ordenamiento tributario italiano y el principio del «ne bis in idem». *Civitas. Revista española de derecho financiero*, no. 185, pp. 155-169. ISSN 0210-8453.

MACÍAS-GÓMEZ-ESTERN, B., 2020. “Hybrid psychology agent”: Overcoming the about/for dichotomy from praxis. *Theory and Psychology*, vol. 30, no. 3, pp. 430-435. DOI 10.1177/0959354320923726.

I draw on my experience in community development with “othered” groups to present the idea of the “hybrid psychology agent.” This, I contend, is a key figure in overcoming the dichotomies alleged by Indigenous psychologists and confronted by Held (2020). On the one hand, the concept is rooted in hands-on work in multicultural settings. It is also supported by Cultural-Historical research through projects such as Service Learning that connect higher education students with disenfranchised Roma children. On the other hand, the concept follows a critical theory framework where, as implied by Held, a paradigm shift in science is needed. The issue at point is not whether folk Indigenous knowledge should replace so-called objective knowledge, but how the latter should embrace the experience of a more diverse psychological object and subject, mainly through the participation of “othered” people as psychology scientists and practitioners.

MALDONADO, M.A., ALÓS, F.J. y POVEDANO-DÍAZ, A., 2020. Influence of verbal behavior training on performance for sustainable development in childhood and early adolescence. *Sustainability (Switzerland)* [en línea], vol. 12, no. 12. DOI 10.3390/su12125140.

The effective teaching of language is an aspect of special relevance regarding the good adjustment of children in contexts such as school, family, or community. This article performs an experimental procedure to check which language teaching methodology is most effective in a sample of children. The objective was to analyze the influence of training, Condition 1 (pure tacts more intraverbal) or Condition 2 (pure tacts more impure tacts), on emergence of two tests involving impure tacts (AB-C, AB-D) and four new complex intraverbals (BC-D, BD-C) for each of two sets of stimuli (Set 1 and Set 2). The sample comprised 54 children aged between 6 and 12 years, divided into two groups of different experimental conditions. The results revealed statistically significant differences in performance on the tests of impure tacts and complex intraverbal, obtaining highly effective results in Condition 2. This teaching method using compound stimuli (impure tacts) clearly favors the expansion of language. The practical implications

of this work can be more effective language teaching methodologies implemented that favor the good psychosocial adjustment of children in contexts such as family, school, or the community in general.

MARÍ-N-CONEJO, S., 2020. Introducción: A propósito del debate entre disciplinas transversales, ética, comunicación y género. *Ética, comunicación y género: debates actuales*. S.l.: Dykinson, pp. 1-7. ISBN Dykinson978-84-1324-746-5.

La investigación se ha concebido, tradicionalmente, como una diversidad de espacios estancos con los que no se establecía conexión. Ha sido objetivo de este volumen buscar entre distintas disciplinas nexos de unión temática, mirando con una vocación transversal la ética, la comunicación y los estudios de género. En este ambicioso volumen, incluimos un conjunto de aportaciones académicas, de personas o equipos investigadores, pero también profesionales con una larga trayectoria y reconocimiento en la comunidad académica. Sin embargo, también hemos incluido aportaciones de quienes empiezan, con el propósito de incentivar su carrera académica. Con esta perspectiva, cuatro conceptos clave -así como su crítica o ausencia- confluyen en este volumen: la comunicación, ética, perspectiva de género y también algunas contribuciones de corte jurídico. Se pretende abarcar, con este enfoque, debates y cuestiones que se retroalimentan y plantean la urgencia de rearme ético de la sociedad civil, la responsabilidad de los medios y alcanzar una igualdad efectiva entre todas las identidades de género. Asuntos como el clickbait, fake news, el poder y la economía, la democracia, el derecho a una información veraz, las emociones, la educación y el bienestar, los colectivos afectados por los sistemas patriarcales han sido tratados en el presente volumen.

MARRERO, G.A., RODRÍGUEZ-LÓPEZ, J. y GONZÁLEZ, R.M., 2020. Car usage, CO₂ emissions and fuel taxes in Europe. *SERIEs*, vol. 11, no. 2, pp. 203-241. DOI 10.1007/s13209-019-00210-3.

The number of diesel cars in Europe has grown significantly over the last three decades, a process usually known as dieselization, and they now account for nearly 40% of the cars on the road. We build on a dynamic general equilibrium model that makes a distinction between diesel motor and gasoline motor vehicles and calibrate it for main European countries. Firstly, we find that the dieselization can be explained by a change in consumer preferences paired with the productivity gains from the specialization of the European automotive industry. Secondly, the lenient tax policies in favor of diesel fuel help to explain the rebound effect in road traffic. Finally, from a normative standpoint, the model suggests that a tax discrimination based on the carbon content of each fuel (higher for diesel relative to gasoline) would actually be more effective in curbing CO_2 emissions rather than a tax based on fuel efficiency. Based on the existing studies, we also document that other external costs of diesel are always higher than those of gasoline, and the Pigouvian tax rates should reflect this aspect. This recommendation is radically different to the existing fuel tax design in most European countries.

MARTÍNEZ-CAVA, A., HERNÁNDEZ-BELMONTE, A., COUREL-IBÁÑEZ, J., MORÁN-NAVARRO, R., GONZÁLEZ-BADILLO, J.J. y PALLARÉS, J.G., 2020. Reliability of technologies to measure the barbell velocity: Implications for monitoring resistance training. *PLoS ONE* [en línea], vol. 15, no. 6 June. DOI 10.1371/journal.pone.0232465.

This study investigated the inter- and intra-device agreement of four new devices marketed for barbell velocity measurement. Mean, mean propulsive and peak velocity outcomes were obtained for bench press and full squat exercises along the whole load-velocity spectrum (from light to heavy loads). Measurements were simultaneously registered by two linear velocity transducers T-Force, two linear position transducers Speed4Lifts, two smartphone video-based systems My Lift, and one 3D motion analysis system STT. Calculations included intraclass correlation coefficient (ICC), Bland-Altman Limits of Agreement (LoA), standard error of measurement (SEM), smallest detectable change (SDC) and maximum errors (MaxError). Results were reported in absolute (m/s) and relative terms (%1RM). Three velocity segments were differentiated according to the velocity-load relationships for each exercise: heavy ($\geq 80\%$ 1RM), medium ($50\% < 1RM < 80\%$) and light loads ($\leq 50\%$ 1RM). Criteria for acceptable reliability were $ICC > 0.990$ and $SDC < 0.07$ m/s ($\sim 5\%$ 1RM). The T-Force device shown the best intra-device agreement ($SDC = 0.01\text{--}0.02$ m/s, $LoA < 0.01$ m/s, $MaxError = 1.3\text{--}2.2\%$ 1RM). The Speed4Lifts and STT were found as highly reliable, especially against lifting velocities ≤ 1.0 m/s (Speed4Lifts, $SDC = 0.01\text{--}0.05$ m/s; STT, $SDC = 0.02\text{--}0.04$ m/s), whereas the My Lift app showed the worst results with errors well above the acceptable levels ($SDC = 0.26\text{--}0.34$ m/s, $MaxError = 18.9\text{--}24.8\%$ 1RM). T-Force stands as the preferable option to assess barbell velocity and to identify technical errors of measurement for emerging monitoring technologies. Both the Speed4Lifts and STT are fine alternatives to T-Force for measuring velocity against high-medium loads (velocities ≤ 1.0 m/s), while the excessive errors of the newly updated My Lift app advise against the use of this tool for velocity-based resistance training

MARTÍNEZ-SANZ, J.M., NUÑEZ, A.F., SOSPEDRA, I., MARTÍNEZ-RODRÍGUEZ, A., DOMÍNGUEZ, R., GONZÁLEZ-JURADO, J.A. y SÁNCHEZ-OLIVER, A.J., 2020. Nutrition-related adverse outcomes in endurance sports competitions: A review of incidence and practical recommendations. *International Journal of Environmental Research and Public Health*, vol. 17, no. 11, pp. 1-19. DOI 10.3390/ijerph17114082.

During the last few years, the numbers of competitors in endurance and ultra-endurance sports modalities have increased significantly. This type of competition is an extreme challenge for athletes. Therefore, they have an increased the risk of developing medical and nutritional problems. The aim of the work is to estimate the incidence of nutrition-related adverse outcomes in endurance and ultra-endurance sports, considering the variables that influence them. A critical review was carried out based on the PubMed database, by means of a search strategy based on keywords separated by Boolean connectors. For all the results obtained

in a period from 2008 to 2019, a series of inclusion/exclusion criteria was applied to select only the studies that fitted the objective of the present study. Results and discussion: Of the 871 publications identified, 33 met the inclusion criteria. The adverse outcomes found included exercise-associated hyponatremia (EAH), heat stroke by exertion (EHS), gastrointestinal (GI) problems, dehydration, and hypothermia; the provision of misinformation to athletes about nutrient intake and hydration during competition was identified as the main cause. Conclusions: The main adverse outcomes in endurance and ultra-endurance sports modalities are EAH, GI inconveniences, and EHS. These problems can affect the performance and health status of the athlete during and post-competition. Several nutritional guidelines have been suggested that can prevent these adverse outcomes, and it is essential to individualize and adjust the nutritional intake and hydration status according to the characteristics of each competition

MARTIN-RODRIGUEZ, J.F., RAMOS-HERRERO, V.D., PARRAS, G.G., FLORES-MARTINEZ, A., MADRAZO-ATUTXA, A., CANO, D.A., GRUART, A., DELGADO-GARCIA, J.M., LEAL-CERRO, A. y LEAL-CAMPANARIO, R., 2020. Chronic adult-onset of growth hormone/IGF-I hypersecretion improves cognitive functions and LTP and promotes neuronal differentiation in adult rats. *Acta Physiologica*, vol. 229, no. 2, pp. e13293. ISSN 1748-1708. DOI 10.1111/apha.13293.

Besides their metabolic and endocrine functions, the growth hormone (GH) and its mediated factor, the insulin-like growth factor I (IGF-I), have been implicated in different brain functions, including neurogenesis. Long-lasting elevated GH and IGF-I levels result in non-reversible somatic, endocrine and metabolic morbidities. However, the subcutaneous implantation of the GH-secreting (GH-S) GC cell line in rats leads to the controllable over-secretion of GH and elevated IGF-I levels, allowing the experimental study of their short-term effects on brain functions. Adult rats were implanted with GC cells and checked 10 weeks later, when a GH/IGF-I-secreting tumour was already formed. Tumour-bearing rats acquired different operant conditioning tasks faster and better than controls and tumour-resected groups. They also presented better retentions of long-term memories in the passive avoidance test. Experimentally evoked long-term potentiation (LTP) in the hippocampus was also larger and longer lasting in the tumour bearing than in the other groups. Chronic adult-onset of GH/IGF-I hypersecretion caused an acceleration of early progenitors, facilitating a faster neural differentiation, maturation and integration in the dentate gyrus, and increased the complexity of dendritic arbours and spine density of granule neurons. Thus, adult-onset hypersecretion of GH/IGF-I improves neurocognitive functions, long-term memories, experimental LTP and neural differentiation, migration and maturation.

MEDINA, M.G. y HUETE GARCÍA, M.Á., 2020. Real innovation in urban planning? Assessing the institutional capacity in the frame of the integrated sustainable

urban development programmes. *European Planning Studies*, vol. 28, no. 6, pp. 1139-1160. DOI 10.1080/09654313.2019.1675601.

Since the 1990s, the EU Urban policy has provided several opportunities to explore innovation at local level. This policy is based on the so-called Integrated Sustainable Urban Development (ISUD) approach. This paper explores to what extent the URBANA programme, launched by the Spanish government in the frame of the EU Cohesion Policy 2007–2013, has promoted a ‘new way of doing things’ in local administrations. The research addresses three main objectives. Firstly, to identify which abilities are linked to the ISUD approach. Secondly, to understand how urban managers’ capacity has been developed within local administrations in the frame of the URBANA programme. Finally, to assess the effect of URBANA Institutional Capacity (IC) on the local administration. The information has been obtained from the analysis of EU and Spanish official documents, in-depth interviews and a questionnaire targeted to the local technicians. The general conclusion is that there is evidence of an urban Europeanisation in Spain. The mainstream of the ISUD approach is clear at formal level, but also in the level of acceptance of these requirements by the Spanish municipalities. The ISUD approach remains as a ‘way of doing’, even if proposals are not co-funded by EU funds.

MENCHER, A., MORALES, P., VALERO, E., TRONCHONI, J., PATIL, K.R. y GONZALEZ, R., 2020. Proteomic characterization of extracellular vesicles produced by several wine yeast species. *Microbial Biotechnology*, ISSN 1751-7915. DOI 10.1111/1751-7915.13614.

In winemaking, the use of alternative yeast starters is becoming increasingly popular. They contribute to the diversity and complexity of wine sensory features and are typically used in combination with *Saccharomyces cerevisiae*, to ensure complete fermentation. This practice has drawn the interest on interactions between different oenological yeasts, which are also relevant in spontaneous and conventional fermentations, or in the vineyard. Although several interactions have been described and some mechanisms have been suggested, the possible involvement of extracellular vesicles (EVs) has not yet been considered. This work describes the production of EVs by six wine yeast species (*S. cerevisiae*, *Torulaspota delbrueckii*, *Lachancea thermotolerans*, *Hanseniaspora uvarum*, *Candida sake* and *Metschnikowia pulcherrima*) in synthetic grape must. Proteomic analysis of EV-enriched fractions from *S. cerevisiae* and *T. delbrueckii* showed enrichment in glycolytic enzymes and cell-wall-related proteins. The most abundant protein found in *S. cerevisiae*, *T. delbrueckii* and *L. thermotolerans* EV-enriched fractions was the enzyme exo-1,3- β -glucanase. However, this protein was not involved in the here-observed negative impact of *T. delbrueckii* extracellular fractions on the growth of other yeast species. These findings suggest that EVs may play a role in fungal interactions during wine fermentation and other aspects of wine yeast biology.

MENUDO PACHÓN, J.M., 2020. Economics, Entrepreneurship and Utopia: The

Economics of Jeremy Bentham and Robert Owen by Estrella Trincado and Manuel Santos-Redondo. *Iberian Journal of the History of Economic Thought*, vol. 7, no. 1, pp. 93- 0. ISSN 2386-5768.

In the early 1800s, Robert Owen was a mill owner, political figure, and an advocate for social reform, and his publications attained considerable circulation. He believed that people need good working conditions in order to be encouraged to work and motivated to learn. Despite the higher costs associated with this kind of operation, compared to the traditional ones, Owen's management resulted in increased productivity and profit. His results caught the attention of men of wealth who were interested in social reform. In particular, at a similar time, Jeremy Bentham was developing his own theories. Owen and Bentham seemed to be based on some similar ideas that the greatest happiness creates the greatest results. Their ideas developed against the backdrop of the Industrial Revolution, and growing social and economic problems in England. Owen and Bentham were forerunners of highly relevant current theories of economics – marginalism, entrepreneurship, personnel management, and constructivism. They were acquainted with such important authors as James Mill, Malthus, Ricardo and John Stuart Mill. However, their economic theories were ruled out by classical economists, who actively tried to silence perspectives different from the orthodoxy. This book presents an innovative study of these two social thinkers and reformers, who have rarely, if ever, been studied together. This comparative study provides new context both on the social debate taking place during the Industrial Revolution, and on the development of modern social thought, in particular, the relationship between socialism and utilitarianism. *Economics, Entrepreneurship and Utopia* will be of great relevance to scholars with an interest in the history of economic ideas, the history of entrepreneurship, and social reform in both historical and contemporary contexts.

MIGUEL VICENTE, C. y GRANADA PULAMARIN, W.D., 2020. La gestión de la diversidad en la empresa: coaching y mentoring. En: E. y Discapacidad. E. social CONGRESO NACIONAL DE EMPRENDIMIENTO ocupación y discapacidad (ed.), *Emprendimiento social, ocupación y discapacidad: II Congreso Nacional de Emprendimiento, Empleo y Discapacidad*. S.l.: Universitat Jaume I, pp. 22-0. ISBN Universitat Jaume I 978-84-17900-12-0.

El cambio que se ha producido en la sociedad ha hecho que evolucione el concepto de discapacidad por el de personas con diversidad funcional, reconociéndose sus plenos derechos como ciudadanos/as. Sin embargo, aún en nuestros días sigue habiendo desigualdades en el empleo, con barreras tanto físicas como sociales. Para conseguir mejorar su inclusión laboral hay que conocer el nuevo contexto empresarial marcado por el cambio y la innovación, en el que cada vez tiene más importancia el factor humano. El objetivo de esta revisión es marcar las vías para su inclusión laboral a partir de la adecuada gestión de la diversidad en la empresa. Los diferentes modelos y perspectivas de la gestión de la diversidad destacan las competencias y la satisfacción en el trabajo como factores importantes para el

éxito del proceso. Tiene sentido desde el modelo de competencias, en el que da igual cómo sea la persona si posee las competencias necesarias para llevar a cabo las funciones del puesto. Además, como las competencias se pueden desarrollar y aprender han surgido nuevos métodos de desarrollo y formación del personal como el coaching y el mentoring. Ambos buscan desarrollar el potencial de las personas, tienen fundamentos psicológicos parecidos y tienen efectos positivos en la empresa. Se proponen estas dos metodologías por sus beneficios y su utilidad por parte de los departamentos de recursos humanos o instituciones para mejorar la incorporación de trabajadores con diversidad funcional, y promover modelos de gestión de la diversidad eficaces en la empresa. En definitiva, lograr la inclusión laboral y eliminar las barreras que presentan las personas con diversidad funcional es un asunto de todos, es un tema de derechos humanos.

MIRZAD RAFAEL, E., CORBETT, D., CUETOS, A. y PATTI, A., 2020. Self-assembly of freely-rotating polydisperse cuboids: unveiling the boundaries of the biaxial nematic phase. *Soft matter*, vol. 16, no. 24, pp. 5565-5570. DOI 10.1039/d0sm00484g.

Colloidal cuboids have the potential to self-assemble into biaxial liquid crystal phases, which exhibit two independent optical axes. Over the last few decades, several theoretical works have predicted the existence of a wide region of the phase diagram where the biaxial nematic phase would be stable, but imposed rather strong constraints on the particle rotational degrees of freedom. In this work, we use molecular simulation to investigate the impact of size dispersity on the phase behaviour of freely-rotating hard cuboids, here modelled as self-dual-shaped nanoboards. This peculiar anisotropy, exactly in between the oblate and prolate geometry, has been proposed as the most appropriate to promote phase biaxiality. We observe that size dispersity radically changes the phase behaviour of monodisperse systems and leads to the formation of an elusive biaxial nematic phase, being found in a large region of the packing fraction vs. polydispersity phase diagram. Although our results confirm the tendencies reported in past experimental observations on colloidal dispersions of slightly prolate goethite particles, they cannot reproduce the direct isotropic-to-biaxial nematic phase transition observed in these experiments.

MOLINA-SOTOMAYOR, E., ONETTI-ONETTI, W., CASTILLO-RODRÍGUEZ, A. y GONZÁLEZ-JURADO, J.A., 2020. Changes in cognitive function and in the levels of glycosylated haemoglobin (HbA1c) in older women with type 2 diabetes mellitus subjected to a cardiorespiratory exercise programme. *Sustainability (Switzerland)* [en línea], vol. 12, no. 12. DOI 10.3390/su12125038

Ageing and diabetes are recognised as important risk factors for the development of cognitive deterioration. The aim was to analyse the effects of a walking-based training programme on cognitive deterioration and glycosylated haemoglobin (HbA1c) in older women with type 2 diabetes. This was a six-month experimental and longitudinal study with an experimental group (EG) (n = 57) and a control

group (CG) (n = 52). All participants were diabetic with hypoglycaemic treatment. EG carried out a walking-based training program. After the training, we evaluated the diabetic state (HbA1c), cognitive functioning with the Mini-Mental State Examination (MMSE), cardiorespiratory fitness (VO₂max) and body mass index (BMI). Results: EG obtained better results than CG in all the analysed variables. EG showed a significant improvement in the levels of HbA1c (-4.5%; $p < 0.001$), VO₂max (+5.9%; $p < 0.001$) and BMI (-5.4%; $p < 0.001$); it also obtained increases in the scores of cognitive functioning, which were statistically significant in all dimensions, except for calculation ($p = 0.384$) and language ($p = 0.168$). Conclusion: The aerobic treatment produced significant improvements in the diabetic state and cognitive functioning in older women with type 2 diabetes.

MORAL ARROYO, G. del, RAMOS CORPAS, M.J. y CASTILLO GARCÍA-A, M., 2020. Buenas prácticas en la organización, gestión y dirección de los centros educativos. *Bordón. Revista de pedagogía*, vol. 72, no. 1, pp. 11-30. ISSN 0210-5934.

El objetivo de este trabajo es profundizar en el conocimiento de las buenas prácticas en el ejercicio de la dirección escolar considerando las siguientes variables: las relaciones entre profesorado y equipo directivo, los procesos de retroalimentación, los resultados que debe tener una buena práctica, la respuesta a situaciones novedosas, las variables a tener en cuenta para alcanzar los objetivos, las actitudes del buen director, las dinámicas de proyecto e innovación, el intercambio de prácticas docentes y, por último, los procesos de autoevaluación. Sobre la dirección escolar se han realizado numerosos estudios en las últimas décadas, aunque esta investigación aporta un nuevo enfoque como es el de las buenas prácticas en la dirección escolar. MÉTODO. La metodología es cualitativa basada en la Grounded Theory a partir de la información obtenida mediante grupo focal y posterior codificación y triangulación de datos, con la ayuda de Atlas ti 5.0. RESULTADOS. Los resultados se presentan apoyados con ilustraciones específicas atendiendo a cada una de las variables estudiadas. DISCUSIÓN. Se organiza igualmente atendiendo a las variables estudiadas y se pone de manifiesto, como aspectos más destacables, que las relaciones entre profesorado y equipo directivo tienen que ser respetuosas, horizontales, bidireccionales y participativas, desarrolladas mediante estrategias de cooperación y colaboración. Deben tener en cuenta procesos de retroalimentación mediante la potenciación de la cultura de la autoevaluación como motor de los procesos de mejora en el centro, y no solo deben conseguir buenos resultados, sino mejorar los anteriores; no obstante, deberá tenerse en cuenta el contexto de aplicación.

MORENO-ONATE, M., HERRERO-RUIZ, A.M., GARCIA-DOMINGUEZ, M., CORTES-LEDESMA, F. y RUIZ, J.F., 2020. RanBP2-Mediated SUMOylation Promotes Human DNA Polymerase Lambda Nuclear Localization and DNA Repair. *Journal of Molecular Biology*, vol. 432, no. 13, pp. 3965-3979. ISSN 0022-2836. DOI 10.1016/j.jmb.2020.03.020.

Cellular DNA is under constant attack by a wide variety of agents, both endogenous and

exogenous. To counteract DNA damage, human cells have a large collection of DNA repair factors. Among them, DNA polymerase lambda (Pol λ) stands out for its versatility, as it participates in different DNA repair and damage tolerance pathways in which gap-filling DNA synthesis is required. In this work, we show that human Pol λ is conjugated with Small Ubiquitin-like MOdifier (SUMO) proteins both in vitro and in vivo, with Lys27 being the main target of this covalent modification. Pol λ SUMOylation takes place in the nuclear pore complex and is mediated by the E3 ligase RanBP2. This post-translational modification promotes Pol λ entry into the nucleus, which is required for its recruitment to DNA lesions and stimulated by DNA damage induction. Our work represents an advance in the knowledge of molecular pathways that regulate cellular localization of human Pol λ , which are essential to be able to perform its functions during repair of nuclear DNA, and that might constitute an important point for the modulation of its activity in human cells.

MUELLER, J.C., CARRETE, M., BOERNO, S., KUHL, H., TELLA, J.L. y KEMPENAERS, B., 2020. Genes acting in synapses and neuron projections are early targets of selection during urban colonization. *Molecular Ecology*, ISSN 0962-1083. DOI 10.1111/mec.15451.

When a species colonizes an urban habitat, differences in the environment can create novel selection pressures. Successful colonization will further lead to demographic perturbations and genetic drift, which can interfere with selection. Here, we test for consistent urban selection signals in multiple populations of the burrowing owl (*Athene cunicularia*), a species that colonized South American cities just a few decades ago. We sequenced 213 owls from three urban-rural population pairs and performed a genome-wide comparison of urban against rural birds. We further studied genome-wide associations with flight initiation distance, a measure of harm avoidance in which urban and rural birds are known to differ. Based on four samples taken over nine years from one of the urban populations, we investigated temporal allele frequency changes. The genomic data were also used to identify urban-specific signatures of selective sweeps. Single genomic sites did not reach genome-wide significance for any association. However, a gene-set analysis on the strongest signals from these four selection scans suggests a significant enrichment of genes with known functions related to synapses and neuron projections. We identified 98 genes predominantly expressed in the brain, of which many may play a role in the modulation of brain connectivity and consequently in cognitive function and motivational behaviour during urbanization. Furthermore, polymorphisms in the promoter region of the synaptic *SERT* gene – one of the two candidates known to correlate with urban colonization in birds – associated with the habitat in which individuals lived (urban vs. rural).

MUÑOZ LLERENA, A., CABALLERO BLANCO, P.J. y HERNÁNDEZ, E., 2020. Diseño, validación y fiabilidad de un instrumento de evaluación del comportamiento táctico en mini voleibol. *Retos: nuevas tendencias en educación fí-sica, deporte y recreación*, no. 38, pp. 661-666. ISSN 1579-1726.

El objetivo del estudio fue diseñar, validar y testar la fiabilidad de un instrumento de observación para analizar el comportamiento táctico en un partido de mini voleibol. La herramienta recoge información sobre aspectos del sistema de juego en la modalidad de 4x4. Para el proceso de diseño, inicialmente se realizó una revisión bibliográfica para establecer los criterios de observación. La validez de contenido se estableció a nivel cualitativo (grado de comprensión y adecuación en la redacción, y pertinencia de las preguntas) y cuantitativo (valoración global, escala 0 a 10), a través del acuerdo y consenso de diez jueces expertos. Todos los ítems del instrumento tuvieron una valoración por encima de .7 en el coeficiente V de Aiken. Posteriormente se realizó una prueba de fiabilidad intra e inter observadores, mediante un estudio piloto. A partir de los resultados obtenidos se puede establecer que el instrumento creado dispone de la validez y fiabilidad suficiente para evaluar el comportamiento táctico del equipo durante el juego en la iniciación al voleibol. El instrumento diseñado puede ser una herramienta útil para entrenadores, ya que es fácil de cumplimentar y adaptado a el nivel de juego de alguien que se está iniciando a este deporte.

NIETO-JIMENEZ, C., PARDOS-MAINER, E., RUSO-ALVAREZ, J.F. y NARANJO-ORELLANA, J., 2020. Training Load and HRV in a Female Athlete: A Case Study. *Revista Internacional De Medicina Y Ciencias De La Actividad Fisica Y Del Deporte*, vol. 20, no. 78, pp. 321-333. ISSN 1577-0354. DOI 10.15366/rimcafd2020.78.009.

El objetivo de este estudio fue describir una metodología de seguimiento en una atleta que combina el Ultra Trail Running (UTR) y el Ironman durante 16 semanas, mediante variabilidad de la frecuencia cardiaca (VFC). La carga de entrenamiento (CE) diaria se programó y se cuantificó el sumatorio semanal. Se registraron los intervalos RR (ms) en reposo cada mañana durante 5 minutos y a partir de ellos se midió la RMSSD (raíz cuadrada de la media de las diferencias de la suma de los cuadrados entre intervalos RR adyacentes) como medida de la actividad parasimpática y el índice de estrés (SS) como actividad simpática. Los registros diarios de VFC matutinos parecen ser una forma útil para monitorizar el estado de equilibrio simpático-parasimpático en deportistas antes de abordar las sesiones de entrenamiento. Esta monitorización serviría para detectar precozmente estados de fatiga y para poder monitorizar la planificación de las cargas.

NUVIALA NUVIALA, R., AZNAR CEBAMANOS, M., NUVIALA NUVIALA, A. y GRAO CRUCES, A., 2020. Cultura organizativa del técnico deportivo y su relación con la Satisfacción y Valor percibido de usuarios de actividades deportivas extraescolares. *Retos: nuevas tendencias en educación física, deporte y recreación*, no. 38, pp. 606-612. ISSN 1579-1726.

El elevado abandono deportivo extraescolar preocupa a las organizaciones deportivas. La satisfacción y valor percibido de los usuarios de actividades deportivas extraescolares influye en la continuidad de práctica. Existen relaciones significativas entre las dimensiones de calidad del servicio y cultura organizativa de la organización con la satisfacción y valor percibido del usuario, siendo el

factor humano la principal dimensión predictora de calidad percibida. Objetivos del estudio: i) conocer la cultura organizativa que manifiestan los Técnicos deportivos, ii) averiguar la satisfacción, el valor percibido del usuario/a y la cultura organizativa en las diferentes organizaciones y iii) relacionar satisfacción y valor percibido de los usuarios con la cultura organizativa de los Técnicos del deporte extraescolar. Métodos: La población de estudio estuvo formada por 1.080 alumnos/as y 95 Técnicos de actividades deportivas extraescolares de 22 centros de Secundaria. Resultados: La valoración de la satisfacción por los deportistas fue de 4.33 ± 0.78 y del valor percibido fue de 3.72 ± 1.06 . La cultura organizativa mostró unos valores medios de 3.63 ± 0.41 , siendo la variable *Implicación* la mejor valorada. Al relacionar cultura organizativa con satisfacción y valor percibido, dio como resultado modelos de regresión lineal conformados por dos variables: *Misión* con un valor Beta de (coeficientes).173 y de .262 e *Implicación* con valor Beta (coeficientes).140 y de .198. Conclusión: Una buena cultura organizativa conlleva un aumento de la fidelización, lo que la convierte en un factor más a tener en cuenta en la reducción del abandono deportivo extraescolar y la mejora del beneficio empresarial.

OLMEDO RUIZ, F.J., MATEOS CLAROS, F., LATORRE MEDINA, M.J. y ESTEBAN IBÁÑEZ, M., 2020. Influencia del sexo y la lengua materna en el rendimiento académico. *Propósitos y Representaciones*, vol. 8, no. 1, pp. 7- 0. ISSN 2307-7999.

This work focuses on knowing the differences in the academic performance of children's education students according to sex and mother tongue. To this end, and starting from the different scenarios presented by multiculturality, we have taken into account the peculiarities of this cultural diversity reflected in the classroom. On the basis that we are in a context in which an official language and a cultural dialect coexist. The sample consisted of 489 children's education students from 12 public educational establishments and 3 concerted centres, aged 5 to 6 ($M = 5.23$; $DT = 506$), of which 51.4 percent were boys ($n = 249$) and 48.6 percent girls ($n = 235$) of which 37.7% had Spanish as their mother tongue ($n = 183$) and 62.3% Darija ($n = 302$). The multidimensional instrument of basic skills in Child Education was used (Mateos Olmedo, 2018). The results of ANOVA analysis and binary logistic regression showed that the mother tongue is the main cause of these children's differences, negatively affecting those who have mother tongue Castilian, being clearly defined that the main weakness is shown in the areas of oral expression, written expression and phonetic consciousness.

ORTIZ BARQUERO, P., RUIZ JIMÉNEZ, A.M. y GONZÁLEZ FERNÁNDEZ, M.T., 2020. El caso español y sus implicaciones para el estudio de la ultraderecha: antecedentes y nuevas estrategias de investigación. *Revista de estudios políticos*, no. 188, pp. 199-220. ISSN 0048-7694. 10.18042/cepc/rep.188.07

The aim of this article is to contribute to the theoretical frame about far right, which is focused on the conditions that affect its electoral performance. Spain case is especially suitable to investigate the performance of this family of parties because far right has been irrelevant since the end of Francoist dictatorship to 2018, when

an electoral breakthrough was led by Vox. First, hegemonic explanations about the Spanish case defined as the exceptionalism paradigm will be analysed using a critical glass. Through empirical substantiation, new research strategies will be proposed to study far right in Spain (also of interest to conduct comparative research). These alternative strategies have two main implications. On one hand, the research agenda should give more importance to supply-side theories. On the other, it is necessary to situate far right parties at the centre of explanations.

OSUNA-GOMEZ, R., HERNANDEZ-JIMENEZ, B., CHALCO-CANO, Y. y RUIZ-GARZON, G., 2020. New optimality conditions for multiobjective fuzzy programming problems. *Iranian Journal of Fuzzy Systems*, vol. 17, no. 3, pp. 19-31. ISSN 1735-0654.

OTERO-SABORIDO, F.M., VÁZQUEZ RAMOS, F.J. y GONZÁLEZ JURADO, J.A., 2020. Análisis de la evaluación en los currículos de Educación Física en Secundaria. *Educación XXI: Revista de la Facultad de Educación*, vol. 23, no. 2, pp. 259-282. ISSN 1139-613X. 10.5944/educXX1.25662

El tratamiento que recibe la evaluación en los currículos es uno de los rasgos más relevantes debido a que sus connotaciones van más allá de la didáctica. Por ello, el objetivo de este trabajo fue analizar los aspectos evaluativos para la asignatura de Educación Física (EF) en Educación Secundaria Obligatoria comparando los 17 currículos autonómicos. Se utilizó el análisis documental de los 17 currículos a través de una herramienta validada que analizó los 1979 estándares evaluativos de las Comunidades Autónomas (CCAA). Para el análisis de resultados se aplicó estadística descriptiva con un objetivo exploratorio, técnicas correlacionales para establecer asociaciones entre variables y regresión múltiple para determinar modelos explicativos. Los resultados muestran el uso del estándar como referente evaluativo generalizado y la ausencia de orientaciones evaluativas concretas en los diferentes criterios de evaluación aplicados. El análisis exploratorio revela la prevalencia de la dimensión cognitiva (41,9%) en los estándares en detrimento de la dimensiones motriz (29,41%) y socioafectiva (28,65%). La Globalidad Educativa de los referentes evaluativos es baja (11,13%) en comparación con los que incluyen dos (26,20%) y una dimensión (62,67%). El análisis correlacional refleja relaciones directas y significativas entre la globalidad del currículo y el porcentaje dedicado a la dimensión motriz ($r=0,671$, $p=0,003$) y la eficiencia del currículo y la dimensión motriz ($r=0,758$; $p=0,000$); por otro lado, resulta una asociación inversa y significativa entre el tamaño de los currículos y la globalidad de los mismos ($r=0,651$; $p=0,005$). Los resultados de la regresión múltiple muestran dos modelos predictivos en los que la dimensión motriz explica tanto la Globalidad Educativa de los currículos ($p=0,01$) como su eficiencia ($p=0,012$). Como conclusión, parece necesario otro modelo curricular en EF menos estandarizado, con referentes más globales y que oriente al profesorado sobre prácticas de evaluación más formativas. Por último, la dimensión motriz con un carácter integrado debiera tener mayor presencia en los currículos de EF.

PARRA GONZÁLEZ, M.E., SEGURA ROBLES, A., MORALES CEVALLOS, M.B. y LÓPEZ MENESES, E., 2020. Relación de los factores asociados en el desarrollo

de experiencias gamificadas. *Campus Virtuales*, vol. 9, no. 1, pp. 113-123. ISSN 2255-1514.

Actualmente una de las principales preocupaciones entre los docentes es la falta de implicación del alumnado en las tareas académicas y su propio aprendizaje, ya que los primeros necesitan que los segundos participen o tomen parte de manera activa en muchas de las situaciones en los procesos de enseñanza-aprendizaje. Uno de los elementos principales es la falta de motivación de los alumnos ante los aprendizajes que deben realizar en clase. Las metodologías activas se presentan como una alternativa para que los alumnos construyan de forma activa su aprendizaje, con la guía del profesor. Entre las metodologías activas se encuentra la gamificación, que se presenta como una metodología se utiliza técnicas y estructuras del juego en contextos no lúdicos, para provocar y construir un aprendizaje. Esta investigación tiene como objetivo definir y contrastar un modelo explicativo sobre las dimensiones personales que entran a formar parte de los alumnos con el uso de dicha metodología como son el dominio del alumno, el disfrute, la ausencia de efecto negativo y la absorción con respecto al pensamiento creativo del estudiante. El instrumento empleado es el cuestionario GAMEX, traducido y validado por los autores del presente manuscrito para este contexto, como una investigación previa a la actual. Los resultados obtenidos muestran que existe una relación positiva entre todas las dimensiones, es decir, el dominio del alumno, su disfrute, la ausencia de efecto negativo y la absorción del alumno con el pensamiento creativo del mismo. También existe relación entre las dimensiones ausencia de efecto negativo y dominio con el disfrute de los estudiantes y entre el dominio y el disfrute de los estudiantes con la absorción de los mismos en el aprendizaje mediante experiencias gamificadas.

PÉREZ-ORDÁS, R., POZO, P. y GRAO-CRUCES, A., 2020. Effects on aggression and social responsibility by teaching personal and social responsibility during physical education. *Journal of Physical Education and Sport*, vol. 20, no. 4, pp. 1832-1838. DOI 10.7752/jpes.2020.04248.

Introduction:In recent years, many studies have focused on developing and implementing intervention programmes to improve ethical behaviours and values through physical activity and sports. Teaching Personal and Social Responsibility model is clearly one of the most well-developed models for promoting personal and social competencies in physical education. It is necessary also to study the influence of the type of context in improving the aggressiveness and social responsibility of the students. The study's aim was twofold: (a) to investigate the effects of a Teaching Personal and Social Responsibility programme within physical education on aggression and social responsibility; and (b) to compare these effects between lower-middle and upper-middle socioeconomic context schools. **Material and Methods:**Participants were 210 students (ages 10-12) from four primary schools in southern Spain. Two measures were used: (a) Physical and verbal aggression scale; and (b) Social responsibility behaviours' record. A quasi-experimental design with three analysis of covariance (ANCOVA) tests were completed to analyse the results, and to study differences by socioeconomic context and gender. **Results:**Significant decreases in physical and verbal aggression total score ($p = .028$) and in verbal aggression ($p = .003$) were found

in the lower-middle socioeconomic context experimental group. Verbal aggression was significantly reduced in girls ($p = .022$) from the experimental group. Regarding the social responsibility, improvements were shown in the intervention group. Conclusion: In conclusion, it has been reported that the applied programme is a useful tool to improve aggressive and prosocial behaviours in primary school students from 'low-performing' schools. Its implementation allows a systematic progression of the different responsibility levels, and leads to spaces for self-reflection in group.

PINERO, P., PEREZ-NEIRA, D., INFANTE-AMATE, J., CHAS-AMIL, M.L. y DOLDAN-GARCIA, X.R., 2020. Unequal raw material exchange between and within countries: Galicia (NW Spain) as a core-periphery economy. *Ecological Economics*, vol. 172, pp. 106621. ISSN 0921-8009. DOI 10.1016/j.ecolecon.2020.106621.

A global multi-regional input-output model with sub-national resolution for Galicia, north-west Spain, was used to study physical and value added trade balances between Galicia, the rest of Spain and the world. Within the framework of Ecologically Unequal Exchange theory, we argue that a region, such as Galicia, can play a twofold role as core and periphery in the global division of extractive activities. We show that Galicia is a sink, i.e. net importer of natural resources from middle- and low-income economies, and that the lower the income of the trade partner, the more raw material intensive the imports (measured as upstream kg per USD imported value added). However, this physical deficit is less accentuated than for the rest of Spain and Galicia's material footprint is significantly lower (~ 14.2 compared with ~ 24.5 t/capita). Moreover, Galicia is a source, i.e. net exporter of raw materials compared with more thriving European Union economies and, even for some key trade partners, such as Germany, UK and the rest of Spain, it is a net importer of value added.

PORRAS NADALES, A.J., 2020. ¿Hay que reformar el Tribunal Constitucional? *Temas para el debate*, no. 305, pp. 52-55. ISSN 1134-6574.

No es necesario reformar el Tribunal Constitucional en España. En general, el modelo de control concentrado vigente sigue manteniendo su prestigio internacional y comparado, así como un pleno reconocimiento de evaluación científica. Tras los cambios legales de 2007, se solventó lo que constituía el gran factor de bloqueo: la sobrecarga de casos de amparo constitucional producida por la acumulación de miles de asuntos que habían generado un auténtico desbordamiento. Esto no quiere decir que no haya aspectos problemáticos pendientes en relación con el Tribunal Constitucional, que se refieren más bien a cuestiones operativas que afectan a su funcionamiento efectivo, sino que tiene que ver con el mecanismo de nombramiento de los magistrados y el considerable y reiterado retraso en el tiempo de sus sentencias.

POZO CUEVAS, F., NAVARRO ARDOY, L., MASAKO NAKAHIRA y CUTIÑO RAYA, S., 2020. El desempeño relacional de la prisión. La valoración de los presos del trato y las relaciones con funcionarios de vigilancia y personal de tratamiento. *Revista Española de Investigación Criminológica: REIC*, no. 18, pp. 1- 0. ISSN 1696-9219.

The relational performance would work as a key dimension to evaluate the quality of prisoner's life in prison. From our survey carried out in 2017 and 2018 with 102 inmates serving sentences in Spanish prison (Sevilla II), the prisoner's assessment over the staff-prisoner relationships was analyzed to measure the quality of inmate's prison life, with special attention to the different perception of the custodial officers and the rehabilitation staff. The method used in this survey is based on the Measuring Quality of Prison Life (MQPL) created by Alison Liebling from Prison Research Center, UK. The findings confirm that the attitude of prison staffs toward inmates and the relationships between prison staffs and prisoners are two mayor factors to underline the inmate's prison experience.

RAMÍREZ, L., MOSTACERO LEÓN, J., LÓPEZ MENESES, E., CRUZ, A. de la y GIL CLIMENT, A., 2020. Aspectos etnobotánicos de Cuspón, Perú: Una comunidad campesina que utiliza 57 especies de plantas en sus diversas necesidades. *Scientia Agropecuaria*, vol. 11, no. 1, pp. 7-14. ISSN 2077-9917. 10.17268/sci.agropecu.2020.01.01

It is known that the Andean-Amazon communities throughout history have made a correct and effective use of its floristic resources, which by intelligently domesticating them have become true contributions of Peru for humanity. For this reason, this research focused on determining the aspects ethnobotanicals of the species used by the Cuspon Peasant Community. 150 semi-structured interviews were applied, to collect information regarding: taxonomy, common names, habit or bearing, habitat, way of propagation, part used and ethnobotanical use, to later determine the Cultural Index (CI). The Cuspon community uses 57 species of plants distributed in 48 genera and 30 families; the most representative being the Asteraceae (11), solanaceae (4), Euphorbiaceae (3), Malvaceae (3), Onagraceae (3) and Urticaceae (3); and the most species Important: *Solanum tuberosum* L. «potato» (IC = 1.33), *Zea mays* L. «corn» (IC = 1.31), *Chenopodium quinoa* Willd. «quinoa» (IC = 1.06), *Caesalpinia spinosa* (Molina) Kuntze «tara» (IC = 0.97), *Capsicum pubescens* Ruiz & Pav. «rocoto» (IC = 0.95), *Juglans neotropica* Diels «walnut» (IC = 0.92), *Alnus acuminata* Kunth «alder» (IC = 0.86), *Cestrum auriculatum* L'Hér. «holy grass», *Minthostachys mollis* (Benth.) Griseb. «muña» (IC = 0.85).

RINCÓN, A.M. y MONJE-CASAS, F., 2020. A guiding torch at the poles: the multiple

roles of spindle microtubule-organizing centers during cell division. *Cell Cycle*, vol. 19, no. 12, pp. 1405-1421. DOI 10.1080/15384101.2020.1754586.

The spindle constitutes the cellular machinery that enables the segregation of the chromosomes during eukaryotic cell division. The microtubules that form this fascinating and complex genome distribution system emanate from specialized structures located at both its poles and known as microtubule-organizing centers (MTOCs). Beyond their structural function, the spindle MTOCs play fundamental roles in cell cycle control, the activation and functionality of the mitotic checkpoints and during cellular aging. This review highlights the pivotal importance of spindle-associated MTOCs in multiple cellular processes and their central role as key regulatory hubs where diverse intracellular signals are integrated and coordinated to ensure the successful completion of cell division and the maintenance of the replicative lifespan.

RIVAS-MARIN, E., WIEGAND, S., KALLSCHEUER, N., JOGLER, M., PEETERS, S.H., HEUER, A., JETTEN, M.S.M., BOEDEKER, C., ROHDE, M., DEVOS, D.P. y JOGLER, C., 2020. *Maioricimonas rarisociagen. nov., sp. nov.*, a novel planctomycete isolated from marine sediments close to Mallorca Island. *Antonie Van Leeuwenhoek International Journal of General and Molecular Microbiology*, ISSN 0003-6072. DOI 10.1007/s10482-020-01436-z.

Planctomycetes are ubiquitous bacteria with environmental and biotechnological relevance. Axenic cultures of planctomycetal strains are the basis to analyse their unusual biology and largely uncharacterised metabolism in more detail. Here, we describe strain Mal4^T isolated from marine sediments close to Palma de Mallorca, Spain. Strain Mal4^T displays common planctomycetal features, such as division by polar budding and the presence of fimbriae and crateriform structures on the cell surface. Cell growth was observed at ranges of 10–39 °C (optimum at 31 °C) and pH 6.5–9.0 (optimum at 7.5). The novel strain shows as pear-shaped cells of $2.0 \pm 0.2 \times 1.4 \pm 0.1 \mu\text{m}$ and is one of the rare examples of orange colony-forming Planctomycetes. Its genome has a size of 7.7 Mb with a G+C content of 63.4%. Phylogenetically, we conclude that strain Mal4^T (=DSM 100296^T=LMG 29133^T) is the type strain representing the type species of a novel genus, for which we propose the name *Maioricimonas rarisocia* gen. nov., sp. nov.

RODRÍGUEZ DÍAZ, Á. y MOSCOSO-SÁNCHEZ, D., 2020. El sesgo de la participación deportiva en España: argumentos y análisis alternativos. *Diàlegs sobre l'esport (1975-2020)*. S.l.: INDE Publicaciones, pp. 189-201. ISBN INDE Publicaciones978-84-393-9996-4.

RODRÍGUEZ-GÓMEZ, I., SANTALLA, A., DIEZ-BERMEJO, J., MUNGUÍA-IZQUIERDO, D., ALEGRE, L.M., NOGALES-GADEA, G., ARENAS, J., MARTÍN, M.A., LUCIA, A. y ARA, I., 2020. Sex differences and the influence

of an active lifestyle on adiposity in patients with mcardle disease. *International Journal of Environmental Research and Public Health*, vol. 17, no. 12, pp. 1-11. DOI 10.3390/ijerph17124334.

McArdle disease (glycogenosis-V) is associated with exercise intolerance, however, how it affects an important marker of cardiometabolic health as it is adiposity remains unknown. We evaluated the association between physical activity (PA) and adiposity in patients with McArdle disease. We assessed 199 adults of both sexes (51 McArdle patients (36 ± 11 years) and 148 healthy controls (35 ± 10 years)). Body fat (BF) was determined using dual-energy X-ray absorptiometry (DXA) method and each patient's PA was assessed with the International PA Questionnaire (IPAQ). Although body mass index values did not differ between patients and controls, McArdle patients had significantly higher values of BF in all body regions ($p < 0.05$) and higher risk of suffering obesity (odds ratio (OR): 2.54, 95% confidence interval (95% CI): 1.32–4.88). Male patients had higher BF and obesity risk (OR: 3.69, 95% CI: 1.46–9.34) than their sex-matched controls, but no differences were found within the female sex ($p < 0.05$). In turn, active female patients had lower trunk BF than their inactive peers ($p < 0.05$). Males with McArdle seem to have adiposity problems and a higher risk of developing obesity than people without the condition, while female patients show similar or even better levels in the trunk region with an active lifestyle. Therefore, special attention should be given to decrease adiposity and reduce obesity risk in males with McArdle disease

RODRÍGUEZ-IZQUIERDO, R.M., 2020. Service learning and academic commitment in higher education. *Revista de Psicodidáctica*, vol. 25, no. 1, pp. 45-51. DOI 10.1016/j.psicod.2019.09.001.

As a result of the university reform, the challenge for universities is to promote the quality of teaching, for which it is necessary to implement student-centered teaching methodologies. These methodologies require the commitment of students to their studies, which is not always present. To date, work on the relationship between service learning (SL) and academic commitment (AC) has been scarce. The aims of this paper are two-fold: to validate the Utrecht Work Engagement Scale for Students (UWES-S-9) and to evaluate the effect of the SL-based methodology on the AC of university students. A quasi-experimental design of repeated pretest-posttest measurements with control group was carried out. The sample consists of 342 students, 168 experimental students who participate in SL practices and 174 control students who had not participated in SL. Both groups complete the UWES-S-9 in pretest and posttest. The baseline hypothesis was that students who participated in ApS practices would achieve higher levels of AC with their studies. The results verify the existence of significant differences, in favor of the experimental group, in three of the factors that compose the AC: *vigor, dedication and absorption*. The discussion focuses on the potential value of the SL methodology for improving the AC of university students and paves the way for rethinking the implementation of active teaching methodologies as a key issue for optimising the quality of teaching at university.

RUIZ-ARIZA, A., TORRE CRUZ, M.J. de la, APPELQVIST SCHMIDLECHNER, K., MARTINEZ-LOPEZ, E.J. y NINA TAMMINEN, 2020. Does physical fitness and parenting transformational style predict happiness and wellbeing and distress in adolescents? *Retos: nuevas tendencias en educación física, deporte y recreación*, no. 38, pp. 626-631. ISSN 1579-1726.

There is a growing interest on the relationships between family functioning and behaviors that promote physical and psychological well-being in children and adolescents. The aim of the study was to assess the association of parenting transformational style with happiness, wellbeing and distress in adolescents, beyond of physical fitness influence, and independently of age and body mass index. Data were gathered among 868 Spanish schoolchildren aged 12-16 years (M=14.07, SD=1.24) with a self-administered questionnaire and conducting physical fitness tests. The findings showed that age and the perception of a maternal and paternal transformational style predicted happiness, wellbeing and distress in adolescent girls. In boys, only the parental transformational style acted as a significant predictor, independently of fitness level. Muscular strength contributed to explain the wellbeing in adolescent girls independently of transformational style; however, it did not happen in speed-agility and cardiorespiratory capacity. Findings suggest that promotion of parenting transformational style is beneficial to the psychological wellbeing, above all in younger adolescents. In girls, promotion of higher muscular strength could contribute to improve happiness and wellbeing independently of parental transformational styles.

RUIZ-BALLESTEROS, E. y DEL CAMPO TEJEDOR, A., 2020. Community-based tourism as a factor in socio-ecological resilience. economic diversification and community participation in floreana (Galapagos). *Sustainability (Switzerland)* [en línea], vol. 12, no. 11. DOI 10.3390/su12114724.

RUIZ-SOBRINO, A., MARTIN-BLANCO, C.A., NAVARRO, T., ALMUDI, I., MASIERO, G., JIMENEZ-CABALLERO, M., BUCHWALTER, D.B., FUNK, D.H., GATTOLLIAT, J.L., LEMOS, M.C., JIMENEZ, F. y CASARES, F., 2020. Space colonization by branching trachea explains the morphospace of a simple respiratory organ. *Developmental Biology*, vol. 462, no. 1, pp. 50-59. ISSN 0012-1606. DOI 10.1016/j.ydbio.2020.02.005.

SALAS-VALLINA, A., ALEGRE, J. y LOPEZ-CABRALES, A., 2020. The challenge of increasing employees' well-being and performance: How human resource management practices and engaging leadership work together toward reaching this goal. *Human Resource Management*, ISSN 0090-4848. DOI 10.1002/hrm.22021.

SÁNCHEZ RUBIO, D., 2020. Materiales preliminares para un análisis crítico del poder constituyente. *Revista telemática de filosofía del derecho (RTFD)*, no. 23, pp. 47-77. ISSN 1575-7382.

En este trabajo vamos a hacer una aproximación preliminar y crítica desde la filosofía del derecho sobre el concepto de poder constituyente en su versión popular y en su versión oligárquica. Para ello, se complementará con el análisis de otro concepto propositivo, el poder instituyente que, a su vez, también posee una dimensión popular y otra oligárquica. La crisis que a nivel global están experimentando los estados constitucionales de derecho, con el debilitamiento de sus sistemas democráticos y el enflaquecimiento de las garantías de los derechos humanos por los ataques del totalitarismo del mercado y su ideología neoliberal, provoca la necesidad de reinterpretar los marcos categoriales y los concepto analíticos tradicionales y la búsqueda de nuevos sentidos que nos permitan mayores grados de certidumbre en este contexto incierto. Esto se realizará sobre el concepto de poder constituyente.

SÁNCHEZ-EXPÓSITO, M.J. y NARANJO-GIL, D., 2020. The effect of relative performance feedback on individual performance in team settings under group-based incentives*. *Accounting and Business Research*, vol. 50, no. 4, pp. 342-359. DOI 10.1080/00014788.2020.1712548.

This study reports the results of an experiment that analyses the behavioural effect of relative performance feedback (RPF) on individual performance when compensation is based on team performance. Specifically, it investigates whether RPF affects individual performance differently when the comparison focuses on other members of that individual's team (within-group RPF) or on other teams (between-group RPF). We predict a negative effect of within-group RPF on individual performance. We also predict that between-group RPF moderates that negative effect, since it encourages individuals to focus on group goals rather than individual goals. Consistent with our predictions, results show that the negative effect of within-group RPF on individual performance is mitigated by between-group RPF. Our results can help accountants to better understand how the effects of relative performance feedback differ according to the predominant comparison target.

SANCHEZ-ORO, J., LOPEZ-SANCHEZ, A.D. y COLMENAR, J.M., 2020. A general variable neighborhood search for solving the multi-objective open vehicle routing problem. *Journal of Heuristics*, vol. 26, no. 3, pp. 423-452. ISSN 1381-1231. DOI 10.1007/s10732-017-9363-8.

The multi-objective open vehicle routing problem (MO-OVRP) is a variant of the classic vehicle routing problem in which routes are not required to return to the depot after completing their service and where more than one objective is optimized. This work is intended to solve a more realistic and general version of the problem

by considering three different objective functions. MO-OVRP seeks solutions that minimize the total number of routes, the total travel cost, and the longest route. For this purpose, we present a general variable neighborhood search algorithm to approximate the efficient set. The performance of the proposal is supported by an extensive computational experimentation which includes the comparison with the well-known multi-objective genetic algorithm NSGA-II.

SANCHEZ-SALGUERO, R. y JULIO CAMARERO, J., 2020. Greater sensitivity to hotter droughts underlies juniper dieback and mortality in Mediterranean shrublands. *Science of the Total Environment*, vol. 721, pp. 137599. ISSN 0048-9697. DOI 10.1016/j.scitotenv.2020.137599.

Drought-induced dieback episodes have been globally reported. However, few studies have jointly examined the role played by drought on growth of co-occurring shrub and tree species showing different dieback and mortality. Here, we focused on dieback events affecting Mediterranean shrublands dominated by the Phoenician juniper (*Juniperus phoenicea*) since the middle 2000s in three sites across a wide geographical and climatic gradient in Spain. We compared their growth responses to climate and drought with coexisting tree species (*Pinus pinea*, *Pinus pinaster* and *Quercus faginea*), which did not show dieback in response to drought. We characterized the major climatic constraints of radial growth for trees, surviving and dead junipers by quantifying climate-growth relationships. Then, we simulated growth responses to temperature and soil moisture using the process-based VS-Lite growth model. Growth of shrubs and trees was strongly reduced during extreme droughts but the highest negative growth responsiveness to climate and drought was observed in trees followed by dead junipers from the most xeric and cold sites. Growth of dead junipers responded more negatively to droughts prior to the dieback than co-occurring, living junipers. Growth was particularly depressed in the dead junipers from the warmest site after the warm and dry 1990s. The growth model showed how a steep precipitation reduction in the 1980s triggered soil moisture limitation at the driest sites, affecting growth, particularly in the case of dead junipers and mainly in warm and dry sites. The asynchrony in the simulated seasonal timing of drought events caused contrasting effects on growth of co-occurring shrubs and tree species, compromising their future coexistence. Junipers were particularly vulnerable to hotter droughts during the early growing season. The presented projections indicate that deshrubification events in response to hotter droughts will be common but conditioned by site conditions. Our modelling approach provides tools to evaluate vulnerability thresholds of growth under similar drought-induced dieback and mortality processes.

SANTA-CRUZ MATEOS, C., VALENCIA-EXPÓSITO, A., PALACIOS, I.M. y MARTÍN-BERMUDO, M.D., 2020. Integrins regulate epithelial cell shape by controlling the architecture and mechanical properties of basal actomyosin networks. *PLoS genetics*, vol. 16, no. 6, pp. e1008717. DOI 10.1371/journal.pgen.1008717.

Forces generated by the actomyosin cytoskeleton are key contributors to many morphogenetic processes. The actomyosin cytoskeleton organises in different types of networks depending on intracellular signals and on cell-cell and cell-extracellular matrix (ECM) interactions. However, actomyosin networks are not static and transitions between them have been proposed to drive morphogenesis. Still, little is known about the mechanisms that regulate the dynamics of actomyosin networks during morphogenesis. This work uses the *Drosophila* follicular epithelium, real-time imaging, laser ablation and quantitative analysis to study the role of integrins on the regulation of basal actomyosin networks organisation and dynamics and the potential contribution of this role to cell shape. We find that elimination of integrins from follicle cells impairs F-actin recruitment to basal medial actomyosin stress fibers. The available F-actin redistributes to the so-called whip-like structures, present at tricellular junctions, and into a new type of actin-rich protrusions that emanate from the basal cortex and project towards the medial region. These F-actin protrusions are dynamic and changes in total protrusion area correlate with periodic cycles of basal myosin accumulation and constriction pulses of the cell membrane. Finally, we find that follicle cells lacking integrin function show increased membrane tension and reduced basal surface. Furthermore, the actin-rich protrusions are responsible for these phenotypes as their elimination in integrin mutant follicle cells rescues both tension and basal surface defects. We thus propose that the role of integrins as regulators of stress fibers plays a key role on controlling epithelial cell shape, as integrin disruption promotes reorganisation into other types of actomyosin networks, in a manner that interferes with proper expansion of epithelial basal surfaces.

SCHELLENBERG, M.J., APPEL, C.D., RICCIO, A.A., BUTLER, L.R., KRAHN, J.M., LIEBERMANN, J.A., CORTÉS-LEDESMA, F. y WILLIAMS, R.S., 2020. Ubiquitin stimulated reversal of topoisomerase 2 DNA-protein crosslinks by TDP2. *Nucleic acids research*, vol. 48, no. 11, pp. 6310-6325. DOI 10.1093/nar/gkaa318.

Tyrosyl-DNA phosphodiesterase 2 (TDP2) reverses Topoisomerase 2 DNA-protein crosslinks (TOP2-DPCs) in a direct-reversal pathway licensed by ZATTZNF451 SUMO2 E3 ligase and SUMOylation of TOP2. TDP2 also binds ubiquitin (Ub), but how Ub regulates TDP2 functions is unknown. Here, we show that TDP2 copurifies with K63 and K27 poly-Ubiquitinated cellular proteins independently of, and separately from SUMOylated TOP2 complexes. Poly-ubiquitin chains of \geq Ub3 stimulate TDP2 catalytic activity in nuclear extracts and enhance TDP2 binding of DNA-protein crosslinks in vitro. X-ray crystal structures and small-angle X-ray scattering analysis of TDP2-Ub complexes reveal that the TDP2 UBA domain binds K63-Ub3 in a 1:1 stoichiometric complex that relieves a UBA-regulated autoinhibitory state of TDP2. Our data indicates that that poly-Ub regulates TDP2-catalyzed TOP2-DPC removal, and TDP2 single nucleotide polymorphisms can disrupt the TDP2-Ubiquitin interface.

SORIANO GONZÁLEZ, M.L., 2020. La revolución contra el estado en los orígenes de

internet. *Ética, comunicación y género: debates actuales*. S.l.: Dykinson, pp. 17-32. ISBN Dykinson978-84-1324-746-5.

SUÁREZ PERTIERRA, G., 2020. Consideraciones crí-ticas sobre la Ley Orgánica de Libertad Religiosa en su 40º aniversario. *Derecho y religión*, no. 15, pp. 43-52. ISSN 1887-3243.

La Ley Orgánica de Libertad Religiosa ha tenido amplia vigencia. Pero la secularización de la sociedad española, que ha integrado el pluralismo ideológico y religioso bajo la vigencia de una laicidad abierta, exige una puesta al día de la Ley que desarrolle en todos sus términos el derecho fundamental de libertad ideológica y religiosa y que sitúe adecuadamente la posición de la religión en el espacio público. Esta nueva ley debería fundamentarse en tres ejes principales: desarrollo de las libertades de convicción y religión, reforzamiento del principio de laicidad y alcance de la cooperación.

SUÁREZ VILLEGAS, J.C. y SERGIO MARÍN-CONEJO, 2020. *Ética, comunicación y género: debates actuales*. S.l.: Dykinson. ISBN Dykinson978-84-1324-746-5.

TRIGUEROS, R., MAGAZ-GONZÁLEZ, A.M., GARCÍA-TASCÓN, M., ALIAS, A. y AGUILAR-PARRA, J.M., 2020. Validation and adaptation of the academic-resilience scale in the Spanish context. *International Journal of Environmental Research and Public Health* [en línea], vol. 17, no. 11. DOI 10.3390/ijerph17113779.

The aim of this study was to validate and adapt the academic-resilience scale in the Spanish context. The study involved 2967 university students aged 18–33 (Mean, $M = 23.65$; Standard Deviation, $SD = 2.57$) from several universities in Andalusia (Spain). Exploratory and confirmatory factorial analyses revealed adequate adjustment rates for the new version of the scale showing the factorial structure invariant with respect to that generated. Three factors that integrate the scale obtained high correlation, internal consistency, and temporal stability. The Spanish version of the academic-resilience scale was shown to have adequate psychometric properties to measure academic resilience in the Spanish university context.

VESTRI, G., 2020. La renta básica ciudadana italiana: el Decreto Ley núm. 4 de 28 de enero de 2019. El compromiso de la administración estatal. *Revista General de Derecho Administrativo*, no. 54, pp. 26- 0. ISSN 1696-9650.

VILLANUEVA-PAZ, M., POVEA-CABELLO, S., VILLALON-GARCIA, I.,

ALVAREZ-CORDOBA, M., SUAREZ-RIVERO, J.M., TALAVERON-REY, M., JACKSON, S., FALCON-MOYA, R., RODRIGUEZ-MORENO, A. y SANCHEZ-ALCAZAR, J.A., 2020. Parkin-mediated mitophagy and autophagy flux disruption in cellular models of MERRF syndrome. *Biochimica Et Biophysica Acta-Molecular Basis of Disease*, vol. 1866, no. 6, pp. 165726. ISSN 0925-4439. DOI 10.1016/j.bbadis.2020.165726.

Mitochondrial diseases are considered rare genetic disorders characterized by defects in oxidative phosphorylation (OXPHOS). They can be provoked by mutations in nuclear DNA (nDNA) or mitochondrial DNA (mtDNA). MERRF (Myoclonic Epilepsy with Ragged-Red Fibers) syndrome is one of the most frequent mitochondrial diseases, principally caused by the m.8344A>G mutation in mtDNA, which affects the translation of all mtDNA-encoded proteins and therefore impairs mitochondrial function. In the present work, we evaluated autophagy and mitophagy flux in transmitochondrial cybrids and fibroblasts derived from a MERRF patient, reporting that Parkin-mediated mitophagy is increased in MERRF cell cultures. Our results suggest that supplementation with coenzyme Q₁₀ (CoQ), a component of the electron transport chain (ETC) and lipid antioxidant, prevents Parkin translocation to the mitochondria. In addition, CoQ acts as an enhancer of autophagy and mitophagy flux, which partially improves cell pathophysiology. The significance of Parkin-mediated mitophagy in cell survival was evaluated by silencing the expression of Parkin in MERRF cybrids. Our results show that mitophagy acts as a cell survival mechanism in mutant cells. To confirm these results in one of the main affected cell types in MERRF syndrome, mutant induced neurons (iNs) were generated by direct reprogramming of patients-derived skin fibroblasts. The treatment of MERRF iNs with Guttaquinon CoQ₁₀ (GuttaQ), a water-soluble derivative of CoQ, revealed a significant improvement in cell bioenergetics. These results indicate that iNs, along with fibroblasts and cybrids, can be utilized as reliable cellular models to shed light on disease pathomechanisms as well as for drug screening.

VLAISAVLJEVIC, V., MEDINA, C.C. y VAN LOOY, B., 2020. The role of policies and the contribution of cluster agency in the development of biotech open innovation ecosystem. *Technological Forecasting and Social Change*, vol. 155, pp. UNSP 119987. ISSN 0040-1625. DOI 10.1016/j.techfore.2020.119987.

Building on the open innovation and cluster literature, our research describes how innovation policies contribute to the development of open innovation dynamics in biotech clusters. Particularly, we address the role and impact of cluster agency by adopting a contextualized perspective. We carry out comparative case studies of the main five Spanish biotech clusters by combining longitudinal data extracted from secondary sources with primary data obtained from relevant stakeholders. Our study shows that clusters policies do not yield uniform effects; the impact in terms of patterns of collaboration and (open) innovation dynamics is path dependent. The characteristics of the local texture significantly contribute to the observed open innovation ecosystems. As such, these findings imply a plea for contextualizing regional policy initiatives.

ZHANG, K., ZHANG, K., DELGADO-BAQUERIZO, M., ZHU, Y.-G., ZHU, Y.-G., CHU, H. y CHU, H., 2020. Space is more important than season when shaping soil microbial communities at a large spatial scale. *mSystems* [en línea], vol. 5, no. 3. DOI 10.1128/mSystems.00783-19.

The relative importance of spatial and temporal variability in shaping the distribution of soil microbial communities at a large spatial scale remains poorly understood. Here, we explored the relative importance of space versus time when predicting the distribution of soil bacterial and fungal communities across North China Plain in two contrasting seasons (summer versus winter). Although we found that microbial alpha (number of phylotypes) and beta (changes in community composition) diversities differed significantly between summer and winter, space rather than season explained more of the spatiotemporal variation of soil microbial alpha and beta diversities. Environmental covariates explained some of microbial spatiotemporal variation observed, with fast-changing environmental covariates—climate variables, soil moisture, and available nutrient—likely being the main factors that drove the seasonal variation found in bacterial and fungal beta diversities. Using random forest modeling, we further identified a group of microbial exact sequence variants (ESVs) as indicators of summer and winter seasons and for which relative abundance was associated with fast-changing environmental variables (e.g., soil moisture and dissolved organic nitrogen). Together, our empirical field study's results suggest soil microbial seasonal variation could arise from the changes of fast-changing environmental variables, thus providing integral support to the large emerging body of snapshot studies related to microbial biogeography.

